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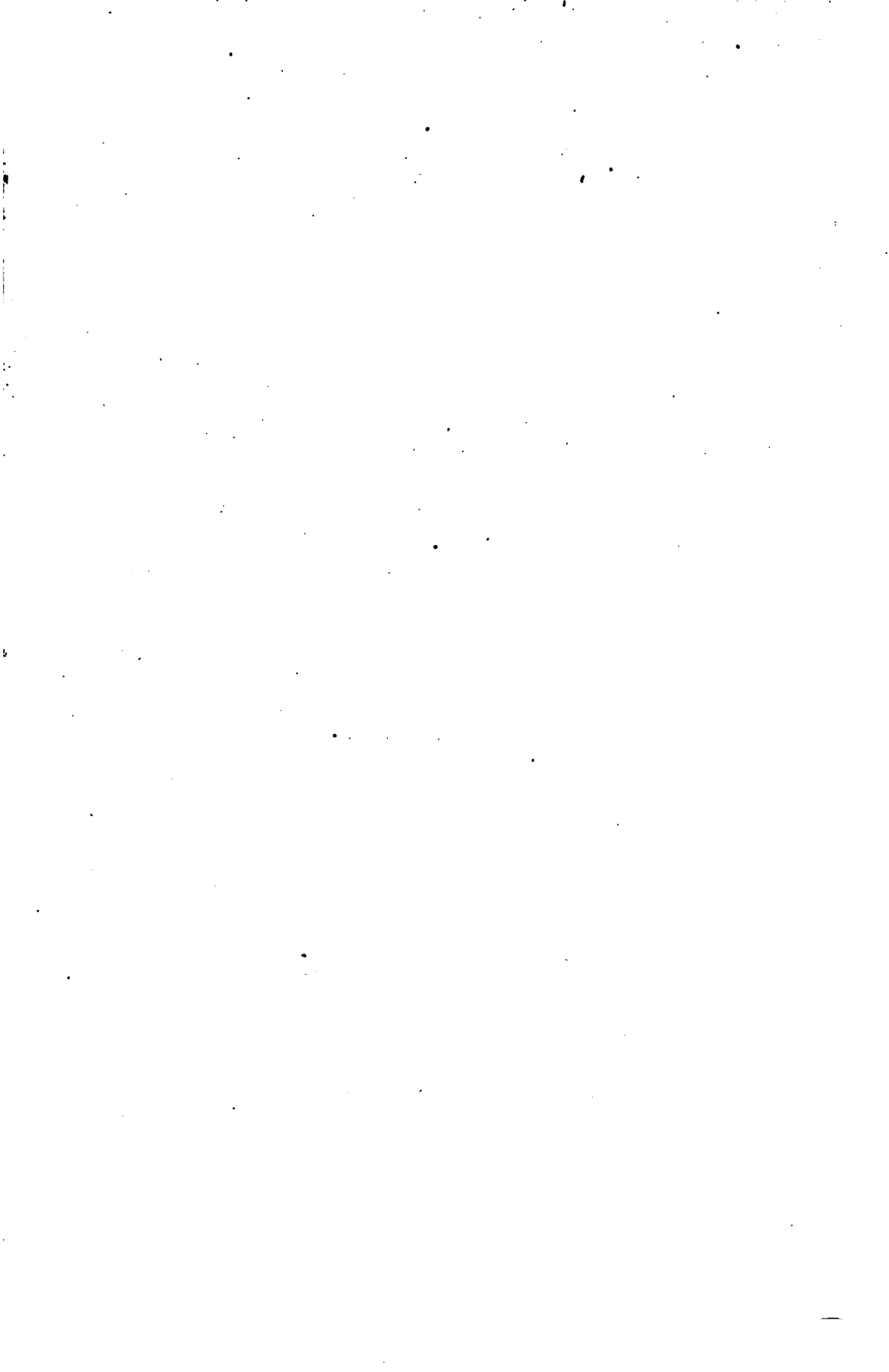
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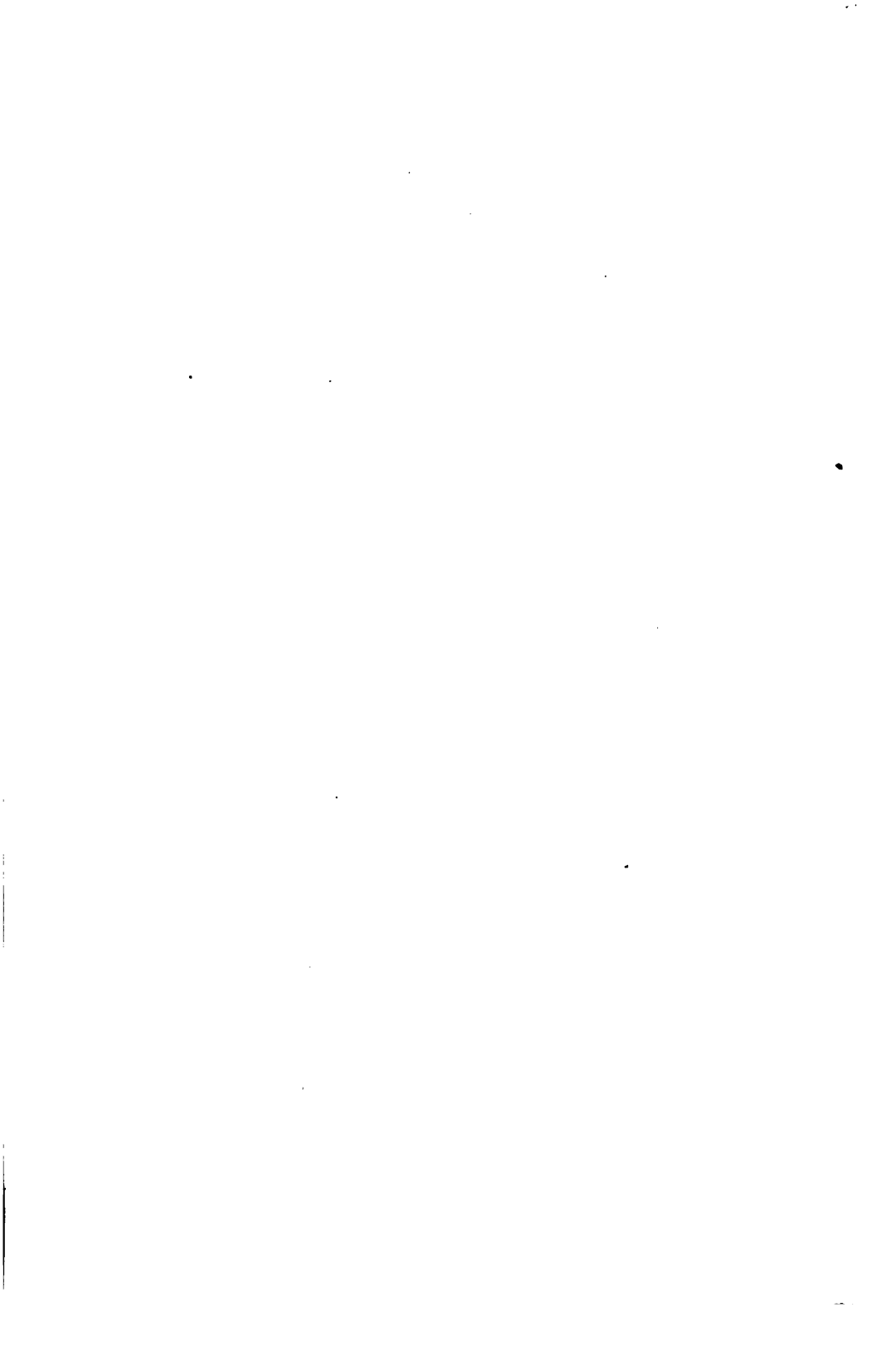
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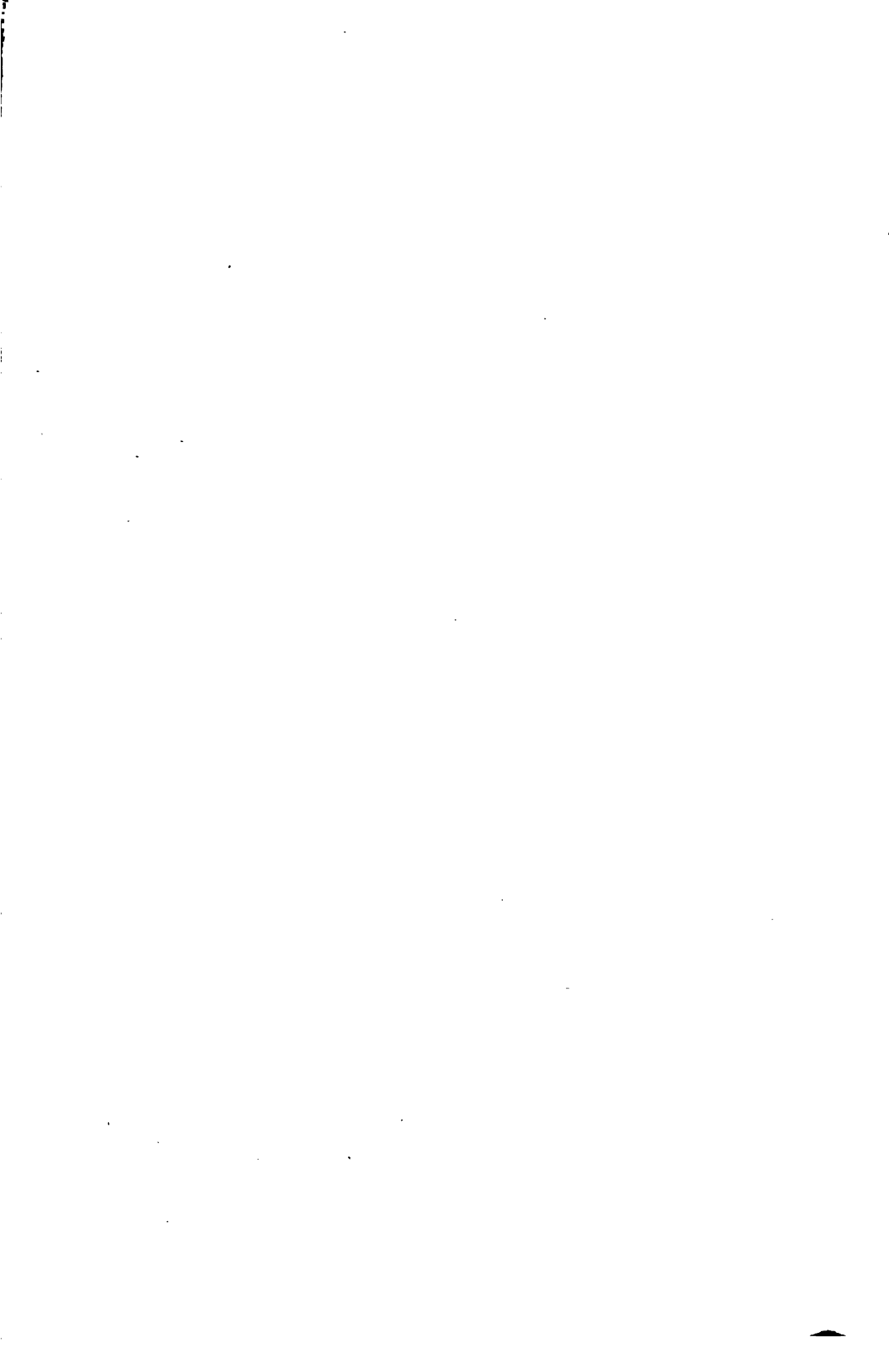






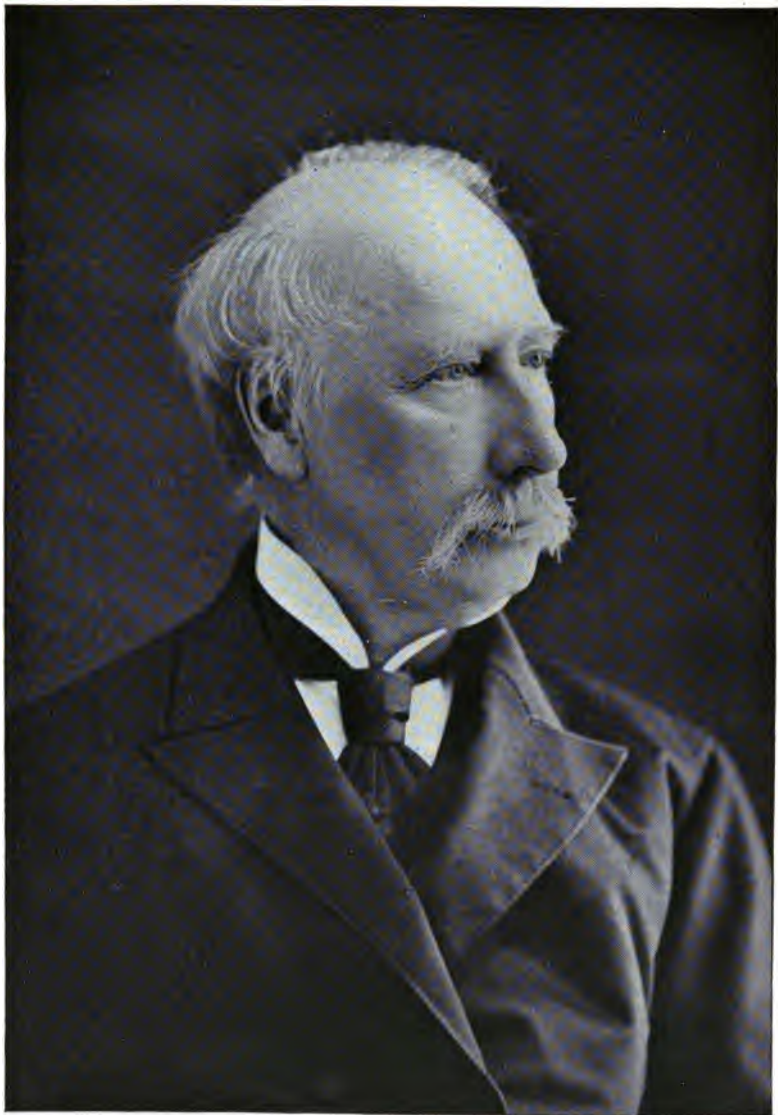










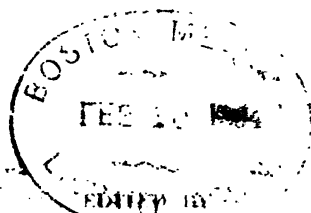


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VOLUME II - 1892



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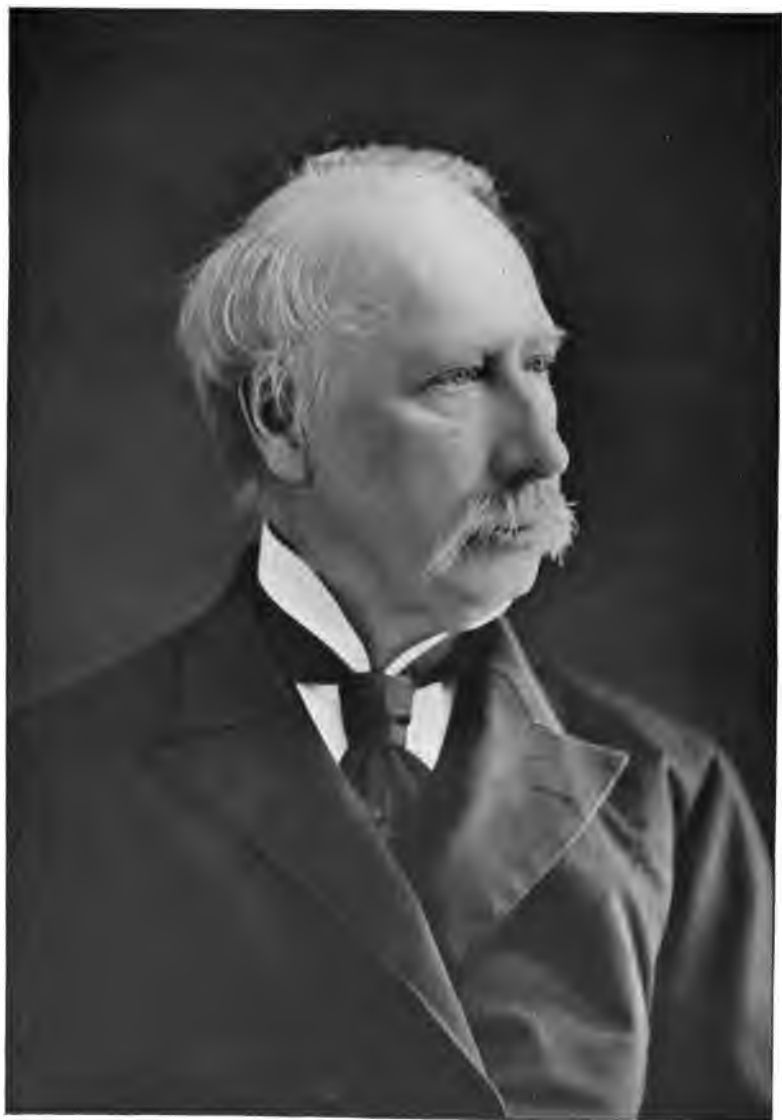
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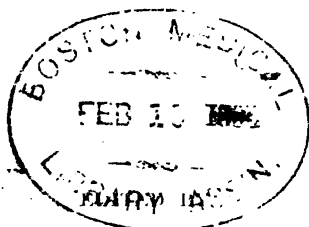


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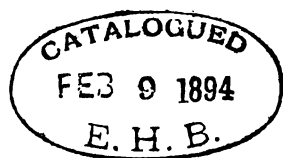
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PREFACE.

THE first volume of "Philadelphia Hospital Reports," published in 1890, met with a favorable reception, and has proved useful to members of the department, to the medical staffs, and to the community, and the publication of succeeding volumes is called for by the same interests. It would be better if the volumes could succeed each other annually, or at least every two years, but numerous unavoidable delays have prevented until now the issuing of this second volume. It contains less historical matter than the first, but some valuable additions have been made in the article on clinical teaching; in the biographical sketches of Dr. Agnew and of Miss Alice Fisher; in the account of cholera in the hospital in 1866; in the notes on the library, and in the chronological table of the medical boards. In succeeding Reports the historical and administrative data should be increased. The scientific material will compare favorably with that presented in the preceding volume, and also, we believe, with that found in the numerous hospital reports of Great Britain and continental Europe. The contributions, with the exception of the historical data and one or two papers, are based almost entirely upon work done in the hospital. In several instances the resident physicians have made interesting contributions, or have rendered valuable service to their visiting chiefs in the preparation of material.

The portrait of Dr. Agnew was obtained through the courtesy of the J. B. Lippincott Company, having first appeared in connection with a biographical sketch published in the *International Medical Magazine*. We are indebted to the superintendent of the Almshouse, to the physician-in-chief of the hospital, and to the secretary of the bureau of charities, for aid and courtesies; and also to Dr. A. C. Peale for valuable assistance while the volume was passing through the press.

CHARLES K. MILLS, M.D.,
JAMES W. WALK, A.M., M.D.



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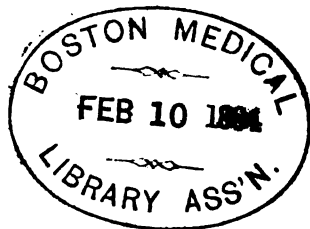
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CLINICAL TEACHING AND CLINICAL TEACHERS IN THE PHILADELPHIA HOSPITAL.¹

BY ROLAND G. CURTIN, M.D.

MR. PRESIDENT, LADIES, AND GENTLEMEN,—The members of the medical staff of the Philadelphia Hospital have chosen me to speak for them on this important occasion,—important not only to the medical staff, but to the city of Philadelphia and its suffering poor who come to these doors for relief.

The medical staff wish me to thank one and all who have been instrumental in bringing about this much needed improvement, in the planning and completion of which our Superintendent, Mr. Lawrence, has taken a continuous interest. This is what may be called practical reform. Let us at this time contrast the old with the new, and see what has been accomplished by the improvements made. The old amphitheatre or operating-room, which stood between the walls that now surround us, was not up to the requirements of modern science. It was unsafe for operations; it was dark and poorly ventilated. It answered well enough for the period in which it was built, but was wholly inadequate for this enlightened age. It had lived its life; it had run its race. Until 1866, the old clinic-room was not, as now, connected with the hospital by a covered way. The patients before that time were carried out in the rain and snow, often to their disadvantage. I was chairman of the committee from the resident physicians who asked the board of guardians to have the covered way built.

¹ On Saturday, October 8, 1892, at 4.30 P.M., the new Clinic and Operating Room of the Philadelphia Hospital was formally opened. The Mayor, Edwin S. Stuart, presided and delivered an address. Addresses were also made by the Hons. W. H. Lambert, W. D. Gardner, Alfred Moore, and John Huggard of the Department of Charities and Correction, by Mr. Charles Lawrence, Superintendent of the Philadelphia Almshouse, Dr. James Tyson, and others. A large audience was in attendance, including the members of the medical board, many physicians, and prominent citizens. At the conclusion of the proceedings, a collation was given to those present by the members of the medical board. The address following was delivered on this occasion by Dr. Roland G. Curtin, president of the medical board.

The *post-mortem room* and *dead house*, where all the germ-exhaling bodies were carried after death, and where autopsies were held, were only twenty feet away, and opened into a hall that communicated directly with the old operating-room. The *pathological room*, where the specimens were taken to be mounted for the museum, was entered from the old clinic-room, and the museum, where all the alcoholic and dried specimens were placed on exhibition, surrounded the top of the amphitheatre. These conditions, associated with an old wooden floor, which absorbed the fluids for germ food and held it for their propagation, made it an unsafe place for operations. The picture I have given would shock the nerves of a sensitive modern aseptic and antiseptic surgeon.

But now how different! We have a light, roomy building, beautiful to look at, connected with the hospital by a handsome and enclosed passage-way, by means of which the patients can be carried to the clinics without exposing them to the outside air. The ample waiting and etherizing rooms which surround the new clinic are another very great improvement. You will all please observe that the new room has a hard-wood wainscot and cement floor, glass shelves for instruments, also hard-wood benches, all of which can be thoroughly cleansed. The heating registers are placed in the upright portion of the steps, so that the dust and fluids cannot gravitate into them with poisonous germs, there to be hatched and propagated by the general steam-heat, to the disadvantage of the old sores and the freshly-made wounds of the surgeon. The dead-house, post-mortem room, the pathological laboratory, and museum, with their dangerous effluvia, have been removed to another part of the grounds.

This room has plenty of light and good ventilation, and can be properly cleansed, all of which gives increased safety to the sufferers undergoing operations. We may expect better results than could have been obtained in the past. It is a clinic-room constructed in obedience to the rules of modern sanitation; it is now ample in size, and as good and comfortable as any in the country. It is a great credit to those who have presided over the institution that holds the welfare of the indigent poor of the city in their hands.

Just when the medical wards in this building were occupied it is impossible to state, as two of the buildings were completed October 1, 1833; probably the male and female paupers were first

removed; the old Almshouse was entirely vacated, final removal commencing July 7, 1834.

Just when the clinic amphitheatre was removed to the building now known as the insane department, on the side of the square opposite to where I now stand, I cannot positively state. The internal arrangements of the first Blockley clinic-room were taken down and a floor placed half-way up the height. The rooms so made have since been used as a doctor's office, a lecture, sewing, and amusement room for the insane.

The two side walls of the old clinic-room or amphitheatre were part of an entrance to the street; two cross walls were erected, and the enclosed square roofed over, and the seats placed therein. After thirty years, in 1891, the roof was taken off and a new one placed on the old walls. This year, 1892, thirty-one years after its dedication, the whole has been torn out and made over, and the modern clinic-room in which we meet together to-day appears as you see it now. Nothing remains of the former hall but the old stone walls, which have been renewed in appearance by the stucco covering.

I ought to state that the seating capacity of this room is fifty more than the old clinic one, owing to the removal of the glass cases of the museum, with also more standing room. The move to this point thirty-one years ago was probably owing to the fact that before this time this side of the great quadrangle was reserved for a manufacturing department, but was then given over to the sick not insane.

It may not be amiss to call attention to some of the benefits derived from clinical teaching carried on in Blockley. "Old Blockley" is honored all over the land and in many foreign countries by the teaching that has been here given by such lights as Benjamin Rush, Gerhard, Pennock, Gross (father and son), Pancoast the elder, Ludlow, Agnew, and others who have gone to their reward; and among those now living who have long since retired from the staff, by Stillé, DaCosta, Penrose, Pepper, Wood, Tyson, Osler, the younger Pancoast, and many others who might be mentioned if time permitted. They gave their valuable time without pecuniary compensation to the poor of Philadelphia. How much they owed to Blockley for their information and experience, none can tell. We all—patients and doctors—have been directly or indirectly benefited by their teachings.

It might perhaps not become me to speak at length of my colleagues, nor even of former members of the medical staff, but I can at least say of them that they are all not only well known men in their profession, but that many of them have made additions to the practical knowledge and to the literature of medicine. Members of both the visiting and medicals staffs have laid down their lives, and have contracted disease which has incapacitated them for future usefulness, by work in this hospital. The resident physicians of the hospital are, as a rule, young men and women of the highest qualities, who diligently and with enthusiasm assist the visiting physicians in their efforts to alleviate the sufferings of the patients.

The good work which has been done not only for this hospital, but elsewhere, to those who have graduated from this institution through the establishment of a training-school for nurses by Miss Alice Fisher, and the exertions of well-known citizens, is so well known to the profession, that it is only necessary for me to allude to it in passing. This school is now one of the most efficient aids to the medical board.

Few have a conception of the multiplied labors of the chief resident physician, Dr. Daniel E. Hughes, in an institution like this. He acts not only as physician-in-chief to the insane department, but he has many other duties connected with the medical work of the hospital.

I have made a calculation that in thirty-one years fifteen to twenty thousand students have attended clinics in the old clinic-room. This teaching has had much to do with making Philadelphia the medical centre of the United States. In this showing we are all interested, whether laymen or doctors. We have now in Philadelphia over one thousand medical students. Let us suppose that they spend six hundred dollars each year apiece; this makes an average of six hundred thousand dollars. Leave out one-sixth for medical students of Philadelphia, and you have half a million of dollars spent here every year. This money is distributed not only in the colleges, but also in the boarding-houses, tailors' shops, instrument makers, shoe-stores, and book-stores. Moreover, the medical students who graduate here come back for medical and other supplies.

By Philadelphia being a great medical centre, thousands of patients come here annually to be treated, and they also leave

much money behind for board, nursing, shopping, etc. These facts prove that the city at large is benefited financially by the medical teaching; the material furnished by this hospital assists largely in giving us the reputation necessary to attract students. We should all be interested in keeping up that reputation, and proud to assist in adding to her honor and general welfare.

The material furnished by this hospital has instructed also our family physicians; we know the benefit of their experience. Again, the researches here have settled some of the most important questions in medicine. It was here that Drs. Gerhard and Pennock gave to the medical profession post-mortem evidence of the essential difference between typhus and typhoid fever. They showed that the condition of the intestines in the one forbids solid food, and this one observation alone has saved thousands of lives all over the world.

Soon after I entered Blockley as resident physician, I met in a car Dr. Gerhard, who was then quite infirm. In answer to his inquiry, I remarked that I was at the institution where he and Dr. Pennock had made their wonderful experiments. With a flashing eye, and a voice in an ascending scale, he thumped his cane on the floor of the car, exclaiming, "Experiments! Experiments! That is the wrong term; they were *absolute conclusions!*" In that car we were the observed of all observers.

Blockley has given the world much information and valuable statistics which have been published in journals, text-books, reports, addresses, etc., and this seed sown broadcast has ripened into multiplied harvests throughout the world.

Some of the notable literature that has thus emanated from the valuable experience here gained may be instanced: Gerhard and Pennock on the differential diagnosis between typhus and typhoid fever; Stillé on cholera and on epidemic cerebro-spinal meningitis; also Dr. W. H. H. Githens on the same subject; Pepper and Parry on relapsing fever, and many other valuable essays well known to all the medical profession.

The old clinic-room was formally opened on October 16, 1861, when Dr. J. L. Ludlow delivered an able address on "The Rise and Progress of Clinical Instruction." When the great, good, and honored Dr. D. Hayes Agnew, that Christian gentleman and scholar, wrote his Medical History of this institution,—which was read at the opening of the clinics, October 15, 1862, thirty years

ago,—the visiting medical staff of physicians numbered twelve. The resident staff consisted of ten in 1866. The nurses were generally persons who had been patients, and numbered about twenty. The visiting staff has been increased to forty-two; the resident staff now numbers twenty-three; and in the nurses' school we have about one hundred nurses.

The attendance on the Philadelphia Hospital clinics is from all the colleges in the city. The students are from all countries. I have seen on the benches Turks, Roumanians, Africans, Canadians, Bermudans, Brazilians, Chilians, and Japanese—male and female—old style, new style, and eclectic. All students are welcome, and are admitted on an equal footing without fee, and receive the best practical instruction we can give.

The facilities for clinical instruction in this hospital are excelled by only about four hospitals in the world, and by none on this side of the Atlantic. This hospital embraces what in New York is called Bellevue Hospital or the City Hospital, and Charity Hospital, which is associated with the Almshouse, criminal institutions, and others that are under city control. The two together are larger than Blockley, but one is in the city and the other on Blackwell's Island. We have in the winter over twenty-two hundred sick and nervous patients to glean from. To this add the valuable teaching in pathology, to make which more effective we have sometimes opportunities to show the classes not only the case, but also the pathological specimens from the bodies of the patients previously lectured upon, verifying or disproving the opinions expressed to the students in the clinics. The teaching here is plain, practical instruction.

In 1875, Dr. Edward L. Duer first lectured at nine o'clock in the morning on obstetrics and gynæcology. He was dissuaded by his colleagues, as they believed the students would not be present at that early hour. He thought differently, and vigorously carried out his plan, and every one now will give him the credit of having met with great success, having had large classes from the start.

You may ask what benefit the clinics are to patients. I reply that the clinic cases are studied more carefully than others. They are examined with great minuteness, often a long time before being shown to the class; they are looked on in all their aspects. A doctor is very chary of the diagnosis he makes before a class; he is always very careful how he presents the cases, and his treatment

is thorough and scientific, for the students are great critics, and sometimes they have the chance of seeing the "crucial tests" commonly known as post-mortems.

You may ask, do patients object to going before students? Such objections are exceedingly rare and are always respected. The members of the medical staff will all bear me out that it is not infrequent for the patients to ask to be lectured on.

I hold in my hands a volume of Reports which is the mirror of the work now doing in the hospital, and a record of what has been done in the past, and for which we are largely indebted to, among others, the cordial support of the Mayor of the city, who has honored us with his presence to-day, and who gave his influence in the Finance Committee of Councils (of which he was then a valued member) in behalf of the small appropriation required for its publication.

In concluding my remarks, ladies and gentlemen, I cannot do better than to make two brief quotations from Dr. Agnew's history of the institution:

"On the 10th of September, 1860," he says, "the medical board addressed the Guardians on the propriety of throwing open the wards of the hospital for free clinical instruction. This proposition was considered from a liberal and intelligent stand-point, in its broader and more general bearings, and on the 24th of September, 1860, received their cordial sanction; and its doors have been opened to this time; and it is to be hoped through all time to come its doors may never be closed against or a fee craved from those who enter its halls in search of knowledge, which can alone render them qualified to discharge the functions of a divine art."

Again he says, "It is difficult to overestimate the importance of this institution to either the profession or the community. To say nothing of the multiform types of destitution and want which it meets and relieves, look at the field which it offers to the disciples of medicine, and no man will lightly esteem this who contemplates the prosecution of his profession with a conscience void of offence towards God and man. Here is a hospital in which over eight thousand cases of disease are treated annually; a children's asylum, offering illustration of all the complaints incident to this period of life; and there is an obstetrical department, in which as many as seven cases of labor have occurred in twenty-four

hours, and where in the last thirteen years over two thousand six hundred children have been born. One year industriously spent in this institution will yield in medical experience the fruits of ten years gathered from ordinary practice. But to place the statement in another form ; a graduate of medicine faithfully improving for a single year his opportunity for study of disease in the wards of the Philadelphia Hospital, will be better fitted to assume the responsibility of his profession than one who labors ten years in an ordinary city or country practice."

DAVID HAYES AGNEW, M.D.¹

DAVID HAYES AGNEW was born in Lancaster County, Pa., November 24, 1818. He was the son of a physician, and from both parents was of Scotch-Irish lineage. His early education was obtained at a country school near his home, from which he went to the Moscow Academy in Chester County, to lay the foundation for classical studies. Later he studied at the Jefferson College, Cannonsburg, Pa., and at the Newark, afterwards known as Delaware College, in Newark, Delaware.

In 1836 he entered the medical school of the University of Pennsylvania, was graduated from that institution April 6, 1838, and immediately commenced the practice of medicine in Nobleville, Lancaster County, Pa. Later he removed to Pleasant Garden, Chester County, Pa., where in 1841 he married Margaret Creighton Irwin. In 1843, Dr. Agnew joined his brothers-in-law in the management of their large iron interests at Pleasant Garden, remaining with them three years, when he resumed the practice of medicine, locating at Cochranville, Chester County, Pa.

¹ The distinguished surgeon, Dr. David Hayes Agnew, died since the publication of the first volume of the "Philadelphia Hospital Reports" in 1890. Dr. Agnew's life was for many years intimately associated with that of the Philadelphia Hospital, he having been a member of its medical staff from 1858 to 1865, and curator of the Museum from 1861 to 1867. To him we are indebted for the well-known "Medical History of the Hospital," which was republished as the first article in the first volume of the Reports. It seems fitting that his portrait and a brief sketch of his life should appear in this volume, but for the complete record of his noble work we would refer to the memoirs of Drs. J. Howe Adams, DeF. Willard, and J. W. White, from which the facts of this sketch have been taken:

"History of the Life of D. Hayes Agnew, M.D., LL.D. By J. Howe Adams, M.D. Philadelphia and London: The F. A. Davis Company, Publishers, 1892.

"D. Hayes Agnew, M.D., LL.D. Biographical Sketch by his Pupil, Friend, and Assistant, DeForest Willard, M.D. Read by invitation before the Philadelphia County Medical Society, April 13, 1892. Monograph and in Proceedings of the Philadelphia County Medical Society, 1892.

"Memoir of D. Hayes Agnew, M.D., LL.D. Prepared at the request of and read before the College of Physicians, Philadelphia, January 4, 1893, by J. William White, M.D., Professor of Clinical Surgery in the University of Pennsylvania. Supplement to the 'University Medical Magazine,' February, 1893."

In this memoir Dr. White says, "In 1854, he [Dr. Agnew] had been elected a surgeon to the Philadelphia Hospital, and thus had been given not only his first hospital wards, but also his first opportunity to perfect himself in the teaching of clinical surgery. He always regarded this step as one of the most important in his professional life, and once, in speaking of it to me, said he had already at that time decided that he 'might as well attempt to be a gardener without a garden as a surgeon without a hospital.'"

He came to Philadelphia in 1848, intending to pursue anatomical and surgical studies that he might ultimately devote himself to the practice of surgery. In 1852 he purchased the Philadelphia School of Anatomy, located on College avenue, or Chant street, and there began to teach anatomy. Two years later he opened the Philadelphia School of Operative Surgery, using the second story of the building, in which he taught anatomy for that purpose. In these schools he taught hundreds of students, but in 1863 disposed of his interest, receiving therefor the amount which he had originally invested.

In 1854, Dr. Agnew was elected to the Philadelphia Hospital. Here he had large opportunity to perfect himself in clinical teaching. Among his associates were Drs. Ludlow, Smith, and Penrose, and by the combined efforts of these four men the vast wealth of material in the hospital was once more used for purposes of instruction after a long interval of denial. His work as a surgeon in the Philadelphia Hospital was of the highest order. He performed many of his best operations during his term of service, and acquired a reputation for teaching and for skill in surgery which extended far and wide. His love for pathological anatomy was an incentive for the foundation of the museum in the hospital, in which are preserved numbers of valuable pathological specimens. He was the first curator, and devoted much time to preparing, labelling, and arranging in order the various jars containing interesting and often rare illustrations of diseased conditions. After a service of more than a decade, in 1865 he resigned the position of surgeon to the Philadelphia Hospital and accepted the same office on the staff of the Pennsylvania Hospital. The Pathological Museum continued under his care, however, until 1867, when, with an account of its flourishing condition, he transferred it to his successor, Dr. William Pepper.

During the War of the Rebellion, Dr. Agnew did good service as surgeon to the Satterlee General Hospital and the Hestonville Military Hospital, in West Philadelphia, and as consulting surgeon to the Mower Hospital, located at Chestnut Hill, Pa.

He was elected surgeon to the Wills Eye Hospital in 1864, and continued to fill the position until 1868, when he resigned and was elected emeritus surgeon, which title he held until his death. When the Orthopædic Hospital was organized in 1868, he was appointed one of the surgeons. In 1871 he became consulting

surgeon to this hospital. The Hospital of the University of Pennsylvania was opened 1873-74, and Dr. Agnew was placed at the head of the surgical department. His clinics were the most popular of all held in the hospital, and were always well attended. He severed his connection with the Pennsylvania Hospital in 1871, but in 1877 he again accepted a position on its staff, serving until 1884.

As a teacher Dr. Agnew commenced his work in the Philadelphia School of Anatomy. In 1863 he relinquished his claims on that school, and the same year commenced his service with the University of Pennsylvania. For some time previously he had substituted for Dr. H. H. Smith in giving instruction in surgery to the students, but in this year he was appointed demonstrator of anatomy and assistant lecturer in clinical surgery. In 1871, he was chosen professor of clinical surgery, and one year later became the John Rhea Barton professor of the principles and practice of surgery. These two positions he filled until 1889, when he resigned them to be made emeritus professor of surgery and honorary professor of clinical surgery.

Dr. Agnew was a member of many medical organizations, and in these he received the highest honors. He was president of the Philadelphia County Medical Society (1875), and held the same office in the Pennsylvania State Society (1877). The Philadelphia Academy of Surgery and the American Surgical Association each made him president of their respective organizations the same year (1888). In 1890 he was elected president of the College of Physicians of Philadelphia.

The Presbyterian Hospital conferred upon him the title of honorary surgeon in 1891, which title had never before been given. Other than the positions enumerated, he was consulting surgeon to many hospitals and institutions in Philadelphia and the vicinity. He served for thirty-three years as manager of the Philadelphia House of Refuge. He was a member of the board of directors of the Union Trust Company of Philadelphia, of the board of trustees of the Philadelphia Dental College, of the American Philosophical Society for Promoting Useful Knowledge, and of the Franklin Institute.

He received the degrees of A.M. and LL.D. from Princeton College, and LL.D. from the University of Pennsylvania.

He died March 22, 1892.

ALICE FISHER.¹

By J. WILLIAM WHITE, M.D.

IN 1884 the efforts which had been made for many years by the medical staff of this hospital and by a few members of the Board of Guardians, notably Mr. Edward Hoffman, aided by Mr. Richard McMurtrie, Mr. John Huggard, Mr. Lucien Moss, Dr. Thomas Biddle and others, to secure a competent head nurse and introduce an improved system of nursing, resulted in the appointment of Miss Alice Fisher as Supervising Nurse and in the foundation of a Training-School.

¹ This address was delivered by Dr. J. William White, of the Surgical Staff of the Hospital, on the occasion of the graduating exercises of the Training-School for Nurses, January 31, 1893, which were held in the Amphitheatre or Clinic Hall. Present on the occasion were Hon. William H. Lambert, President of the Department of Charities and Correction, with his fellow members, Hon. Wm. D. Gardner, Hon. Alfred Moore, and Hon. John Huggard; also Mr. George W. Childs of the *Public Ledger*, Colonel A. K. McClure of the *Philadelphia Times*, Mrs. E. D. Gillespie, Mrs. Senator Hawley, formerly Miss Edith Horner, the associate of Miss Alice Fisher in the organization of the Training-School, besides numerous members of the medical staff of the hospital, and a large audience of ladies and gentlemen. Thirteen students received their diplomas, and addresses were made by Major Lambert, Colonel McClure, and Mrs. Gillespie.

Major Lambert, who presided, in opening the exercises, after a prayer by the Rev. Mr. Heaton, spoke of the origin of the Nurses' Training-School, and the encouragement given to it by a gentleman who desired to see it grow and prosper,—Mr. Childs. The diplomas were handed to the graduates by Major Lambert, who remarked that they did not mean so much paper, but were certificates of merit well deserved after a course of hard study.

Colonel McClure referred to the distinguished position held in the community by Mr. Childs, and said he thought the highest compliment that could be conferred upon him was to call him a true American citizen. No man, said he, in all the opportunities of life had so grandly fulfilled this as Mr. Childs, and none was more deserving of honor. Colonel McClure said he found more difficulty in talking about the duties of nurses than he did about many other subjects. He conceived that they had before them the highest duties which humanity could call upon them to perform. He spoke of the advances of civilization by which woman is daily increasing the ranks of wage earners, until now there is hardly a channel of occupation that she desires to enter that is not open to her, and employment is given not grudgingly, but courteously, as a right and not as a favor. There is no prejudice to-day to any of the highest and noblest of woman's efforts, to one of which you are called with all the sanction of public ceremony. He congratulated the graduates that this country is advancing to the forefront in all good works, and that they now had an opportunity to aid in making the work much better.

Mrs. E. D. Gillespie, who was called to speak on behalf of the Alumnae, paid a well-deserved tribute to Miss Alice Fisher, the founder of the school, and her efficient co-laborer and friend, Miss Edith Horner. She gave some pathetic as well as amusing incidents connected with her experience as a matron of the Soldiers' Hospital on Christian street and at Broad and Cherry streets in the early days of the war, and closed by wishing the graduates all the joy possible on this occasion, for what they and their sisters were now doing would bring lasting peace.

Those of us who were most interested in the movement heard of Miss Fisher first through Dr. John Ogle, of London, a friend and correspondent of Mr. George W. Childs. Subsequently, testimonials of her admirable work at Addenbrooke's Hospital, Cambridge; Radcliffe Infirmary, Oxford; and the Royal Hospital, Birmingham, corroborated the statement of Dr. Ogle that we would be fortunate if we secured her services, and led us not only to select her, but also to confide to her judgment the selection of her assistant, Miss Edith Horner. I came here the afternoon of their arrival in this city, partly because of my official duty as Chairman of the Committee of the staff having the matter in charge, partly from a desire to see at the earliest possible moment whether our choice, made after much effort and tribulation, had been a successful one.

I did not remain in doubt many minutes after exchanging the first few words with Miss Fisher. Her quiet, but self-reliant manner, her earnest and evidently authoritative statements as to the principles which should be applied in our much-needed reform, and her ready and comprehensive answers to all the questions which were propounded, showed at once that she possessed both the natural qualifications and the knowledge and experience that fitted her for the task which lay before her. Of the magnitude of that task those who did not know this institution during the years preceding her advent can have no conception. Controlled by successive Boards of misnamed "Guardians," in which a few honest men were almost always outnumbered and outvoted by unscrupulous demagogues or adroit political wire-pullers, the supplies levied upon, the appropriations diverted and the whole place honeycombed by the corruption of personal appointment and favoritism, the hospital had suffered proportionately more than other departments on account of the greater need for skilled service to its helpless and unfortunate inmates.

The nursing had been done largely by convalescent patients, always of low intelligence and often of bad character, who were in turn presided over by head nurses or chiefs of wards selected not by reason of experience or special qualification, but because they or their friends could control a precinct or a division, or could otherwise make themselves useful to the embryo legislators or congressmen of the board.

Matters were by no means at their worst in 1884. Much good

had been accomplished by the efforts of the gentlemen I have already named, but no serious impression had yet been made upon the nursing system, or rather upon the chaos which showed the lack of any such system.

To this task, without the loss of a day, Miss Fisher addressed herself, and it was my good fortune to observe with admiring sympathy the skill, energy, and perseverance with which, during the next two years, she overcame the obstacles that custom, fortified by ignorance or stupidity on the one hand and by malice or absolute dishonesty on the other, placed in her way. One by one the barriers thus erected disappeared before her persistent protests or her persuasive eloquence; the needed changes followed each other steadily and rapidly; neatness and cleanliness and order, not altogether unknown previously, but often conspicuous by their absence, became the invariable rule, and, above all, the mortality of the hospital decreased so that it became apparent—and demonstrable—that many lives were being saved through her labors.

Nor was this all. Her attractive and winning personality brought to the hospital hosts of friends from among the most cultured and most philanthropic people of the city, who had hitherto heard or known nothing of its needs or had been repelled by the apparent hopelessness of its condition and environment. The first course of lectures to the nurses of this school, which I had the honor of opening in this amphitheatre on January 21, 1885, was attended by such audiences as had never before gathered in Philadelphia for instruction in this or kindred topics, packing the room from floor to ceiling. The interest which they manifested, and which brought them out here by the hundreds week after week in the depths of winter, arose not from any special ability which had been shown by those of us who conducted the teaching, and not, I believe, primarily from an intrinsic interest in the subjects discussed, but rather from the enthusiasm which Miss Fisher had the faculty of arousing, especially in reference to the humanitarian side of her work, and which was so infectious that it affected the whole community.

This general interest was, doubtless, of inestimable value in a thousand unknown ways, educating the public to a knowledge and appreciation of the possibilities of good nursing both as a blessing to the sick and injured and an indispensable aid to the physician

and surgeon, and also as opening up a hitherto unthought of career to thousands of American women. This school was not the very first in this city, one at the Woman's Hospital having preceded it, but it was the first to awaken wide-spread interest, and to emphasize the inefficiency of the old systems and the waste of both life and money which they occasioned.

The most obvious effect, however, of the attention which Miss Fisher's ability and magnetism attracted to the hospital was shown in the almost immediate application of women of the same social class as that to which Miss Fisher and Miss Horner belonged, for admission to the school. Beginning with two probationers, the numbers of such women steadily increased, and on January 16, 1886, I had the pleasure of delivering an address to a graduating class of thirteen, the first sent out from this institution, and at the head of which were the two ladies who are now the able and faithful successors of the founders of the school. Since then dozens of competent nurses have gone forth from it, many of whom are occupying positions at the heads of other schools, and most of whom are not only supporting themselves, but are doing so with the agreeable consciousness that they are at the same time relieving suffering and saving or prolonging life, a pleasure more intimately associated with medicine and nursing than with any other of the occupations by which men and women earn a livelihood.

As to the personal side of Miss Fisher's character I can scarcely now, even after this lapse of time, trust myself to speak. Forced by circumstances to ask me for help and advice when she first came here, she was led by habit to continue to do so, and the official relationship thus begun became a personal friendship, which is one of the most pleasant and cherished recollections of my life. My visit to the hospital invariably included one to her rooms, where, like so many others, I never failed to find a kindly welcome, and where I have often profited by the advice which her sound common sense and womanly intuition rendered especially valuable.

It is pleasant to me, as it must be to many of my colleagues, to reflect that when she needed support and backing in any of her numerous plans for the improvement of this institution, I was often able to help her, and by that much to lighten the burden which she carried so cheerfully. Cheerfulness, indeed, was a

dominant trait in her character, and even amid the discouragement of meeting with political obstruction to her most important plans, when her tenure of office was threatened and her work and character vilified, she kept a brave and hopeful spirit and had a laugh or a smile for her friends.

Bravery, too, was among her virtues. She may have been afraid of a mouse—and probably was—but an anonymous letter from a professed Anglophobist, threatening her with destruction by dynamite, never disturbed her placidity; an outbreak of malignant typhoid at Plymouth, Pa., led to her volunteering and going there to live for two months, and in her daily life she never hesitated to work to the utmost limits of her physical endurance.

Indeed, there can be no question that her labors in this institution, while they were the crowning glory of her life, yet materially shortened it. She had had for years a form of valvular disease of the heart, which she knew indicated mental and physical rest, if life was to be prolonged. When, as her professional adviser, I urged this upon her and insisted upon a lessening of her activity, she always pleasantly put the subject aside or said simply that she *could* not do less without being unhappy.

She acquired a sincere affection for this place, and at the beginning of her last illness, when she was most comfortably situated and kindly cared for at the house of a dear friend in Philadelphia, was uneasy and anxious until a temporary improvement permitted me to have her brought here to her old home. She knew for some time that the end was rapidly approaching, but accepted the situation uncomplainingly and with perfect equanimity and cheerfulness. During the last weeks of her life she showed the same keen interest in the welfare and in the future of this hospital and of her training-school as she had always shown, and was as alive as ever to the possibilities both of trouble and of success which lay before them.

She died here on Sunday, June 3, 1888, at half-past three o'clock in the morning, in the presence of friends, who, in everything but relationship, represented the affection and the sorrow of a devoted and loving family.

Her death left a vacancy in the ranks of her profession and in the hearts of her friends which could not be filled.

There were others to carry on in the directions indicated by her the beneficial work she had begun, but I am sure they will not

misunderstand me if I say that, efficient and capable as they have shown themselves, there has never been another in this or in any school in this community who combined her energy, intelligence, and unswerving strength of purpose with the personal magnetism and sweetness and gentleness of character which made her so warmly loved as well as so profoundly respected. Her work was extraordinary, both in its quantity, which would have worn out many strong men, and in its quality, showing a masculine force and breadth of understanding with a feminine tact and insight into character which made her a moving force in every community in which she lived, and justified the statement that she was one of the remarkable women of her time. I have since her death visited some of the institutions with which she had been connected in Great Britain, and find her memory cherished as warmly and her labors as productive of continuing good results as in this city.

As one of those to whom she had committed the care of her worldly affairs (my colleagues being Mr. Childs and Mr. Cadwalader Biddle), I had the opportunity of observing how little she had cared for herself in her life of self-sacrificing labor, and how few and simple were her requests as to the perpetuation of her memory. All that looked to that end consisted in the suggestion that she be laid in the spot where her grave is now situated, from which, at certain times of the year, her beloved Blockley is plainly visible, and that an inscription expressing her desire for peace and rest be inscribed upon her tomb.

The resolutions prepared and offered by my father, then President of the Board of Charities and Correction, fitly express to my mind, and without one word of exaggeration, the true estimate of her relation to this institution and of her life and character. They set forth in effect the facts that to Miss Fisher's organizing faculty and her executive ability, supplemented by indomitable energy and perseverance, the advanced condition and reputation of the Philadelphia Hospital and its Training-School for Nurses were chiefly due; that, as a teacher, she had been enthusiastic and conscientious, laboring to the best of her ability to prepare those whom she instructed for the intelligent and successful practice of their vocation; that, considering her industry, her unselfishness, the worthiness of her aims, the work she had done, and the influence of her example, the termination of her earthly career was a calamity not alone to the institution to whose inter-

ests she gave unstinted labor and unremitting energy, but to all like institutions and to all men and women who, in the spirit which actuated her, were devoting their lives to the noble vocation of ministration to the sick; that her life, consecrated to high purposes, to self-sacrificing service in her profession, to the promotion of all efforts having for their object improvement in the care of the sick, had made her a beneficent and enduring example of concentration, of industry, of zeal, of purity of character, and of devotion to duty; that her talents, her attainments, her labors, her earnestness, her moral worth, and the memory of her genial, kindly, sympathetic spirit would ever be warmly cherished; and, finally, that while her death was a great personal and public bereavement, especial sympathy was to be felt with the pupils of this school, and the sick and injured of this hospital, who, more than any others, suffered irreparable loss; albeit, her unseen and beneficent influence is still potent, and will be transmitted to generations which knew her not.

HEMORRHAGIC TYPHOID FEVER; TREATMENT AND A REVIEW OF THE TABULATION OF SEVENTEEN CASES.¹

By ROLAND G. CURTIN, M.D.

THE young man whom I bring before you this morning you will observe is extremely anæmic. He is fifteen years of age and a native of Ireland. Before his present illness his general health had always been good. He has been sick four weeks, the last two of which have been spent in this hospital. During the first week of his illness he had considerable nosebleed and looseness of the bowels, and had a history of having had several hemorrhages from the bowels. His mother informed the resident physician that with one of these hemorrhages he lost "over a basinful of blood." The patient was very pallid when admitted to the hospital; his lips and conjunctivæ were very pale, and his eyes were dull and heavy. His heart was weak and his pulse was very rapid, and his chest was found to be filled with bronchial râles.

When first admitted to the hospital his temperature was $99\frac{1}{2}^{\circ}$ F., but it soon rose to 104° F.; his tongue was dry and cracked; he slept most of the time, and when aroused he was quite ill and stupid. The second day after his admission, at the commencement of the third week of his illness, he had what is called a tarry stool. The hemorrhage probably accounted for the low temperature of admission, which is often the first symptom. There was nothing abnormal found in his urine. On the 16th, yesterday, his blood was examined, and 3,325,000 red corpuscles were found to the cubic millimetre. You know the normal is 5,000,000, showing that the number of corpuscles was but a little over half the normal quantity. His temperature is now sub-normal, which might be another symptom of hemorrhage, as he has already had several.

This lowered temperature is not from hemorrhage; as the other

¹ Clinical lecture delivered at the Philadelphia Hospital, February 17, 1891.

symptoms show that it is due to commencing convalescence; and you will find that at this stage the temperature usually falls below the normal point. After the loss of blood the temperature went up again, and this was probably due to the reaction which usually takes place after the loss of a large quantity of blood combined with the feverish state, which would take place in a healthy body. I stated to you that early in the third week, just after admission, he had a "tarry stool,"—that is, of dark grumous blood; when a hemorrhage takes place the juices of the intestines alter the blood, and if it remains in the bowel long enough it becomes partially digested, which causes the dark, tar-like color. If the stool should be of this color, it would be likely to escape observation; however, the nurse should be warned to be on the lookout. If the hemorrhage is large and the bowels are loose, it may not come away at all, or only a little changed. It might then be of a venous or arterial color.

I have brought the patient before you more particularly to speak on the treatment of hemorrhage in typhoid fever. During the hemorrhage it would be dangerous to bring a patient from the ward into this clinic. A hemorrhage of the bowels usually takes place sometime before it appears in the stool, so that often the hemorrhage has stopped before it is discovered. You can imagine how a patient might have a small hemorrhage in the small intestine to-day, and if there was a constipated condition of the bowels, the blood might remain there and not be discharged for two or three days. So you must not think, when you see blood coming from the bowels, that the patient is having a hemorrhage then, for he may be safely over it. When this boy came into the hospital he was probably over his hemorrhage, or it was in his bowel. On admission his temperature was quite low, his face was pale, and there was scarcely any color in his lips; and even now, when I pull down the lower eyelid, I find the conjunctivæ and lips very pale indeed. This anæmia is largely due to loss of blood; first, by profuse epistaxis, and later by extreme intestinal hemorrhage. Typhoid-fever poison also has a tendency to poison the blood and cause an anæmic condition.

What does intestinal hemorrhage come from? It is usually from an ulcerated condition of the bowels; probably a slough is thrown off from an ulcerating intestinal gland, a blood-vessel opened, and a hemorrhage produced. Sometimes in typhoid fever we have

persons who are particularly prone to hemorrhage owing to the peculiar condition of the blood; they are called "bleeders," or, speaking more scientifically, they are said to have a hemorrhagic diathesis; it is also called hemophilia and hematophilia. The fact that this young man has had both epistaxis and bowel hemorrhage, goes to show, therefore, that he has an unusual tendency to bleed.

I recollect seeing a child who had typhoid fever some years ago. About the middle of the second week she began to bleed from her bowels and bladder, from her stomach, her lungs, her vagina, and her eyes and ears. This showed that the blood was in such a condition that it was oozing out of all the mucous membranes. In these cases, with hemorrhage from all the mucous surfaces, the fault is in the blood, not a result of ulceration. In typhoid fever usually hemorrhages occur during the third week, at this time the glands are opened by the ulcerating process, and break down and open the blood-vessels.

In a case of typhoid fever, how shall we determine that blood is being poured out into the intestines? First, by the temperature; sometimes by closely watching the temperature, which in large hemorrhages will suddenly fall. In all cases we should view a sudden drop in the temperature as a serious symptom. Secondly, by the constitutional effects. If the fall in temperature should be associated with great sudden prostration, muscular and cutaneous relaxation, hebetude, pallor, sunken features, in other words, a tendency to a state of collapse, the picture is quite complete. We will suppose that a diagnosis of intestinal hemorrhage has been made; what measures shall be used to arrest the bleeding?

Ergot internally and hypodermically administered will generally stop the hemorrhage, but it must not be entirely depended upon, for the blood-vessel may be too large for the ergot to stop the bleeding; and, again, active peristalsis may prevent this mild remedy from arresting the hemorrhage. The patient should be kept quiet, and should not under any circumstances be allowed to turn from side to side or to rise up in bed. The next important step is to give him a remedy which would check peristalsis and keep the bowels at rest. You could use opium or some of its preparation, such as deodorized tincture of opium, if it seems best, or to act better than morphia given internally or hypodermically. If the patient is nauseated, you perhaps cannot

give it by the mouth, then you may give it hypodermically or by the bowel. There are astringents that can be used with good effect, as acetate of lead, gallic acid, and sulphuric acid. These are some of the remedies that are usually given for this complication of enteric fever. The best remedy is ergot or ergotin.

As some patients cannot stand the pain it is likely to produce when given hypodermically, and as ergot given by the mouth sometimes causes vomiting, and as the ergotin as well as the ergot may have a serious influence, no remedies should be given or continued that are liable to produce retching or vomiting. If the hemorrhage does not stop, I have found sulphuric acid or oil of erigeron to be good hemostatics in these cases. These may be given if they do not nauseate the patients. I give the erigeron in the form of a capsule or cachet with magnesium carbonate. The magnesia absorbs and dilutes the erigeron, and in that way you avoid the bad taste and irritation to the stomach. Oil of turpentine internally often acts beneficially in these cases. You can apply it also externally, not as a hot stupe, for the warmth is not desirable, but by a flannel cloth sprinkled with the oil.

In some extreme cases I have seen the bleeding stopped almost at once upon the hypodermic injection of ergotin. When you give this injection, you will find that the patient often suffers much pain in the point of puncture. Sometimes the shock to the nerves does more good in stopping the bleeding than the action of the ergotin itself. In the case of the little girl I spoke of as bleeding from all mucous surfaces, I told her mother that with so much oozing from the stomach it would be impossible to save her, and it would only be a question of a few hours that she could live. Her mother went into the room crying, and the little girl said, "Mamma, did the doctor say I was going to die?" The mother threw her arms about the child and wept. The child said, "Mamma, I am not going to die." Remarkable to relate, the bleeding stopped inside of two hours, and the child got well. It was not medication, it was simply the shock to the nerves caused by the mother's grief which stanchd the flow of blood.

There is an external application that can be tried in bad cases—that of ice to the abdomen. If you have a hemorrhage of the bowels, the patient is very often in a state of collapse, when, of course, it is not a good thing to apply cold to the abdomen, but it is sometimes justifiable when everything else fails. An-

other way that ice has been applied is by placing small pieces of ice in the lower end of the intestines, which brings the cold in close contact with the lower part of the abdomen. The hemorrhage comes on usually unexpectedly, and, if you are thrown on your own resources, it is very important to act promptly. Cold douches on the abdomen have been used with success or with great benefit in some cases, but are open to more objections from the actual application of force.

I shall give you a brief summary of the treatment of hemorrhagic typhoid fever, and you can see at a glance the remedies usually given :

Rest and quiet; ergot internally and hypodermically; opium; acetate of lead; gallic acid; sulphuric acid, externally and internally; oil of turpentine; oil of erigeron; ice to the abdomen; ice to the bowel; stimulants constantly; food given little and often.

When the cases are properly treated and the blood is not seriously altered, hemorrhagic cases of typhoid fever are not often fatal. It is a curious circumstance how many cases of hemorrhagic typhoid fever I have seen during the last six weeks. In the Presbyterian Hospital there have been two cases, and four in this hospital. It is very unusual to have so many cases in so short a time.

When the hemorrhage has ceased, the most important thing is to try and improve the condition of the patient all you can. When the fever is up, it is best not to give iron, as it would not generally be considered good therapeutics.

STATISTICS OF SEVENTEEN CASES OF HEMORRHAGIC TYPHOID FEVER.

I have some statistics of interest on hemorrhage in typhoid fever that I have been gathering for the last twelve years. I have tabulated seventeen cases, the later being more thoroughly noted than the older ones.

The first note is in regard to age. From thirteen to fifteen, two; from fifteen to twenty, three; from twenty to twenty-five, three; from twenty-five to thirty, five; from thirty to thirty-five, one; from thirty-five to forty, none; from forty to forty-five, two; from forty-five to fifty, none; from fifty to fifty-five, one.

The next note of interest is as regards sex. Thirteen were

males; four females. The most of the cases here tabulated were from a hospital in which the male patients largely predominated, and these would not be as many if the cases had been gleaned from an equal proportion of the two sexes.

It is quite interesting to study the data in regard to hemorrhages. First, the day of first hemorrhage. One on the 6th, one on the 7th, two on the 12th, one on the 13th, two on the 15th, two on the 16th, one on the 17th, one on the 21st, one on the 23d, one on the 26th, one on the 29th, one on the 35th, and one on the 39th.

As to the amount of the first hemorrhage, I find that the one occurring on the 6th day was two or three quarts; on the 7th day was a case of hemorrhagic diathesis, in which blood was flowing from the lungs, nose, bowels, and bladder.

Of two cases occurring on the 12th day one lost half a pint, and the other about the same quantity.

The one on the 13th day lost nearly five fluidounces.

Of the two on the 15th day one lost one ounce, and one a half pint.

Of the two on the 16th day one lost six fluidounces, the other, two quarts.

The one on the 17th day lost one pint.

The one on the 21st day lost one and a half pints.

The one on the 23d day lost an amount not noted.

The one on the 26th day lost a half pint.

The one on the 29th day lost two pints.

The one on the 35th day amount not noted.

The one on the 39th day lost one pint.

The study of the cases having two hemorrhages is interesting. Case 1 had two hemorrhages,—the second hemorrhage occurring two days after the first, the amount about one and a half pints. This patient fully recovered. Case No. 3 had two hemorrhages,—the second occurring two days after the first, the amount was one pint. The next case that had more than one hemorrhage was No. 10. This man had three. The amount of the different hemorrhages was not noted. This patient fully recovered. No. 11 had two hemorrhages, and lost about three-fourths of a pint in the last one. No. 17 had two,—the second one occurred five days after the first, the loss was fully a pint.

If we study the color of the blood, we find that in two cases it was bright red, in eight cases it was dark red; one showed altered

blood and clots, and four dark red and clots. In one case the first hemorrhage was bright red and the second dark red.

In three cases of the seventeen a relapse followed the hemorrhage. In three cases of the seventeen hemorrhage occurred after the relapse. In two cases the bleeding was not confined to hemorrhage from the bowels, but also, in one, there was hemorrhage from all the mucous membranes, in another purpura hemorrhagica was present. Twelve of the seventeen cases recovered, and five died. One died the second day after the hemorrhage of exhaustion; one died the third day after; one died in two weeks; two were not noted. In two of the five cases that died autopsies were held. In neither case was the point found from which the hemorrhage occurred. Seven cases were treated in their private homes, and ten treated in the hospital; and of the five deaths but two occurred among those who were treated outside of the hospital. Both of them complicated by la grippe, and one by phlebitis.

It must be remembered that sometimes patients are sent to the hospital upon the discovery that they have hemorrhage from the bowels; hence, they are more liable to die, owing to the fact that, first, they are severe cases, and, secondly, that transportation of the patients in this condition greatly endangers his life.

In looking over these cases I find that the temperature before the hemorrhage in three cases was stated to be not elevated; in two cases elevated to a moderate degree; in one not noted.

Of the six actually noted, the temperature was in two cases 102° F.; two cases, 102.3° F.; one case, 104° F.; one case, 103.4° F.

The temperature as noted after the hemorrhage in one case, 96° F.; one case, 97° F.; one case, 98° F.; three cases, 99° F.; one case, 99.3° F.; two cases, 102° F.

It will be seen by a study of these cases that there was usually a fall of temperature taking place at the time of hemorrhage, particularly where loss of blood was large.

UNIVERSAL MELANOTIC SARCOMATA.

By J. H. MUSSER, M.D.

SARCOMA OF THE ORBIT, REMOVAL OF GROWTH; SECONDARY SARCOMATA OF SKIN AND OF INTERNAL ORGANS AFTER AN INTERVAL OF EIGHT YEARS.

CASE I.—N. P., aged seventy-eight, white, born in Ireland, resident of Philadelphia, widow, domestic. Father and mother died of old age, brother of hip disease. In October, 1877, she was admitted to the eye wards of the Philadelphia Hospital, and on the 19th of January, 1878, the following notes were taken :

Right eye affected for nine months following an attack of nasal catarrh. At first attack the eyeball was very tense, and there was intense ciliary neuralgia with pain extending into back part of head on the right side. Pain continuous with gradual loss of vision, until, in August, 1877, there was complete loss of vision with absolute loss of light perception. Since August she had had remissions of these attacks of pain in head and eyes, but no return of sight.

O. S. Has been at times weak since O. D. was first affected, but no neuralgia in O. S. or in left side of head.

At present, tension of O. S. normal (possibly slightly increased), with tenderness on pressure over upper ciliary region, and very slight prominences of the upper episcleral veins. Cornea, anterior chamber, and iris are normal.

O. D. Tension much increased. Slight lachrymation, the upper episcleral veins full and somewhat tortuous, cornea very slightly hazy, pupil irregular and dilated, the irregularities being due to posterior synechiae. Slight opacities in vitreous, also, preventing a view of the fundus.

Ophthalmoscopic Examination.—O. S. In direct examinations, media clear. Outlines of disc, distinct—especially at outer side where the scleral ring is very prominent. Vessels are strained, and their proportionate size not changed. No cupping of disc. No apparent limitation of field of vision as tried with hand only.

O. S. V., $\frac{12}{x1}$. Advised iridectomy for relief of pain.

Diagnosis.—Glaucoma (chronic).

No further history can be found, and we only know that one year afterwards, or in 1879, the right eye was removed. Previous to this time the patient's general health was good. She returned to the Philadelphia Hospital in September, 1887, for the treatment of a small tumor on the left side of her neck. It was pain-

less, slightly elevated, about the size of a walnut, adherent to the skin, the surface of which was bright-red and puckered. One week afterwards another subcutaneous tumor was found on the right arm, not so red on the surface nor prominent as the first one. In the wards she was treated with mercurials on the supposition that she had syphilis. An increased number of tumors rapidly developed, and it was thought she had multiple fibromata. When first seen by the writer the patient was large and stout, but very pale. After one month she lost strength rapidly, became extremely anæmic and lost flesh. The surface of the body was covered with small nodules by January, 1888. On account of debility and cough she was admitted to my wards, January 19th. Nothing further was learned of the patient's previous history, and the condition above described was noted. Anæmia was extreme, prostration great, while emaciation was most marked. Cough with mucous expectoration was present; no hemorrhages had ever taken place; her appetite was poor, her bowels constipated, her urine free from albumen. The surface of the body was studded with subcutaneous nodules, varying in size from a mustard-seed to a walnut. They were more abundant on the right half of the body, and were limited to the trunk, the upper extremities, neck, and head; a very few only were found on the thighs. So abundant were they that, to the hand passed over the body, a sensation like passing over a grater was felt. The greater number of nodules were movable under the skin, the larger ones were adherent to the skin, and presented a reddish hue on the surface, not a few of them having also puckered skin. The medium-sized ones chiefly presented a bluish hue through the skin. None were seen on the cheeks and nose, but they were abundant in the scalp. They were painless and very hard. The temperature taken when under observation did not rise above normal. She shortly passed from my observation, but it has been learned that progressive exhaustion and emaciation continued to the end without any more marked symptoms. She died March 4, 1888.

Autopsy.—Body of a small woman extremely emaciated. Right eye removed; slight cedema of the ankles. Trunk, neck, shoulders, and arms the seat of subcutaneous tumors, varying from the size of a mustard-seed to a large walnut; the larger number in the connective tissue underneath the skin, quite a number, however, adherent to the skin, on the surface of which there is an area of hyperæmia; others are of a bluish tint even when not adherent. The tumors on removal are readily hulled out of their capsules, usually the larger size presenting areas of

melanotic degeneration. In the head, under the scalp, many are also found. None are found on the legs, a few on the thighs. Larger masses were found on the right side than on the left. On section of abdomen, omentum covered intestines, and was adherent to pelvic structures. In the omentum were a large number of tumors, from the size of a pea to that of a large walnut, and softer than the tumors under the skin, and more markedly melanotic, especially on the surface. The centres of these tumors had not undergone softening. Similar tumors were found in the suspensory ligament of the liver, in the mesentery, and in the connective tissue of the mediastinum. Underneath the peritoneum, in the region of the ureters, they were also found. In the pericardium there was a large amount of fluid. Under the epicardium there was a large number of masses, particularly over the right auricle. In the substance of the heart muscle, white, dark-red, and black masses were observed, particularly in the left ventricle. Similar masses beneath the endocardium, many of them projecting into the left ventricle. These bodies were also found in the papillary muscles. In the right ventricle were large masses projecting into the cavity (having also a broad mass). The largest one in the ventricle was of the size of a small marble. In the left ventricle the largest was the size of a pea. The heart muscle was soft. The pleural cavity contained no fluid, and the pleura was not adherent. Masses formed in the posterior mediastinum; bronchial glands enlarged.

On the posterior surface of the left pleura a large mass was found contiguous to a mass in the lung. Underneath the visceral pleura were numerous masses projecting into the lung structure and into the pleura. The surface adjacent to the pleural cavity, or external surface, usually flattened and projected a few lines above the surface. The large masses presented central degeneration, varying in degree. In the apex of the left lung, posteriorly, was a large mass the size of an egg, made up apparently of smaller masses connected by connective tissue. Masses beneath the pleura of the right lung, usually larger, size of a hickory nut, with flattened surface. Larger masses projected, slightly only, into lung structure. The pedicle of the largest mass very hard.

Liver weighed three pounds. Gall-bladder contained bile and two nodules on the lower surface. The surface of the liver was dark-red, some perihepatitis. Over the surface a few masses were seen, none depressed, all of them presented a pale surface. On section through structure, a large number of masses, some white, with central pigmentation, others black or dark-red, the latter being very soft. These masses were more abundant in the right lobe, the white masses were usually pigmented slightly towards the surface of the liver. Structure of the liver fatty.

In the submucosa of the stomach several cavities were found. The spleen was small but normal. Kidneys underneath capsules were not pigmented. Right supra-renal capsule, the size of an orange, filled with masses, some were deeply melanotic, others only tinged. Supra-renal structure generally destroyed. Left supra-renal capsule about the size of a horse-chestnut. Right ovary, the size of a small orange and contained a large pigmented mass; the left ovary, the same appearance but of a smaller size. Melanotic masses in the uterus—one very large on the posterior surface. Retro-peritoneal glands enlarged and many of them pigmented. Growths scattered through the pancreas. The ribs were soft and fragile. Brain and cord not examined.

Remarks.—The case is of clinical and pathological interest. The early eye symptoms were not explained correctly. The dis-

inction between glaucoma and sarcoma was not made. Of course, tension within the globe was created by the growths.

It seems remarkable that general invasion was delayed. Upon admission the second time, ten years afterwards, the relation of the lost eye to the general condition was plain. The rapid and extreme infection was striking. The involvement of the heart, lungs, and other organs excited but few symptoms.

There were no symptoms or signs of Addison's disease during life, although the supra-renal bodies were much involved in the disease.

SARCOMA OF THE CHOROID; REMOVAL OF EYE; UNIVERSAL VISCERAL GROWTHS; UNUSUAL FEVER.

CASE II.—B. F., a woman, aged forty-five, was operated on in the Wills Eye Hospital on November 11, 1884, for the removal of a growth which occupied the entire orbit and protruded backward, dilating the outer lower eyelid. The tumor grew rapidly. The patient was much debilitated at the time and suffered from neuralgic pain. On removal it was found to be firmly adherent to the bone, but was removed entirely, with the exception of a small tuft about the optic nerve. The growth sprang from the choroid.

She was admitted to the Presbyterian Hospital, January 24, 1885, remained under observation until May 2d, when death took place from exhaustion. At the time of admission she was extremely anæmic, very sallow, and cachectic. She suffered from pain in the epigastrium, from vomiting, which was almost constant; usually the matter was yeast-like, but sometimes bloody. Diarrhœa was present at the same time. A tumor was readily detected in the epigastrium the size of two fists, somewhat painful on pressure but not nodulated. The physical signs did not increase and no new symptoms developed; the exhaustion, however, increased; on account of it she died. The record of temperature subjoined is of interest.

From January 24th to May 2d the temperature ranged from normal or subnormal to 101° F. Once (in March) it rose to 104° F. Most frequently it ranged between 98° F. and 100° F.

Autopsy twenty-four hours after death:

Inspection revealed no rigor mortis; extreme emaciation; marked blueness of the ends of the fingers. Post-mortem ecchymosis of the posterior surface of the body. Œdema of the left foot and ankle. Large bed-sore over sacro-iliac juncture. Abdomen but slightly distended. A little swelling in the left hypochondrium, due to a rather soft, fixed mass in the abdominal cavity. The wall of the abdomen to the right and below the umbilicus contained a mass about the size of a walnut, but slightly attached to the skin over it, which was bluish. A similar nodule was found over the region of the gall-bladder, with some discoloration. Other nodules of similar nature and appearance were seen over Poupart's ligament, in supra-mammary and axillary regions.

On section, these nodules were found to be in the alveolar tissue, encapsulated and but slightly adherent.

On opening the abdominal cavity the right lobe of the liver was found to extend five and a half inches below the margin of the ribs, in the mammary line; the same distance in the median line, which explained the swelling seen before the opening. The abdomen contained a considerable amount of serum.

Thorax.—Organs were found in natural position. The cartilages of the ribs were extremely soft.

Lungs free from adhesions; the lower margin of the left lung contained a few small nodules.

Mediastinal glands were of normal size but dark in color; the glands of the right border of the sternum were enlarged and pigmented.

Pericardium was normal; the cavity contained a few ounces of serum.

Heart.—Very small. Thickening of the aortic valve, with commencing atheroma of the aorta; also atheroma of the base of the leaflet of the mitral valve. Three small millet-seed nodules, clear in color, were found in the left auricular appendage. In the wall of the left ventricle were seen two endocardial growths. In the interior of the same ventricle were seen a number (seven) of the same bodies, some attached to the wall and others to the papillary muscles; all white, anæmic, not pigmented, clear. Weight of the heart, six ounces.

Mesenteric Glands.—All affected with new growths; some pigmented, also several masses varying in size from millet-seed to filbert, in the sub-peritoneal tissue.

Liver.—Weight, eight and three-fourth pounds. Adherent to diaphragm, to enlarged supra-renal capsule at the right of the vertebræ, and to a mass, including the pancreas, the left supra-renal capsule and lymphatics. Enlarged in all directions. The right lobe in the lower half contained two or three large nodules and innumerable small ones of new growth. On the upper half of the right lobe three large nodules at the border projected almost like a separate growth. The exterior surface of the nodules was puckered in the centre, white in color, and intimately adherent to the capsule covering them. On palpation, the left lobe, which was quite swollen, was semi-fluctuating, also dark in color, as if the hepatic tissue had been destroyed and replaced by melanotic material. The surface was lobulated and each lobule was soft. The hepatic tissue proper was redder than normal. The above appearance was seen in the upper surface. The under surface showed similar nodules, and the left lobe had the appearance of destroyed tissue under the thickened capsule.

Gall-Bladder was twice its natural size and filled with bile.

Kidneys.—Normal in appearance and rather small in size. The right *supra-renal* capsule was the size of a large orange and very soft. No appearance of normal structure; on opening the capsule a soft, cerebral-like substance exuded. The left supra-renal capsule was adherent to masses of sarcoma, which had not undergone degeneration, in tail of the pancreas. The supra-renal capsule was partially degenerated and partially nodular; the degenerated portion was black, the nodular portion white and hard.

Pancreas.—Enlarged. The head was replaced by melanotic structure, soft and black. The central portion contained gland structure; the tail contained several large nodules intimately adherent to themselves, to the kidney, and lumbar lymphatic glands.

Spleen weighed ten ounces. A large portion was replaced by degenerated sarcoma, pulpy and black.

Ovaries normal.

Uterus contained intra-mural fibroid. No deposit.

In the left iliac fossa the sub-peritoneal lymphatics were enormously enlarged and the seat of melanotic growth.

Remarks.—Two parallel cases, they present strikingly dissimilar features. The long period of latency, the slowness of the course after the infection was aroused, and its febrile course are phenomena concurrent with the age of the patient. Almost immediate general infection, a rapid course, and considerable febrile reaction are expected in a patient about forty, as was seen in the last case.

SPECIAL WARDS FOR THE TREATMENT OF TYPHOID FEVER.

By J. M. ANDERS, M.D., PH.D.

IN Volume I., of the "Philadelphia Hospital Reports," may be found an article by the writer under the same title which heads the present article. In the paper alluded to, it is contended that the preventive treatment of typhoid fever demands the application of the same principles as are regarded as being appropriate in the management of any other infection and contagious disease. "It must aim to cut off not only the chief, but every channel of communication from the sick to the healthy."

Facts and arguments were also adduced to show that whilst the use of polluted drinking water and milk is most frequently the mode of infection, there is conclusive evidence that the specific bacillus of typhoid is not unfrequently transmitted by the atmosphere from the sick to the healthy.¹

To consider the various aspects of this question here, however, is not necessary, since this has been done in my first article; but I desire, in confirmation of the position previously taken, to place on record the notes of a case that has fallen under my observation quite recently, which case points to the possibility of the occurrence of direct contagion. It should be pointed out that my former paper contained a report of two cases which arose under quite similar conditions.

The notes of the present case were made by the resident physician, Dr. Andrew Hunter, and are, with slight modifications, here subjoined:

P. H., aged sixteen years, native of England, a seaman, was admitted to the Medico-Chirurgical Hospital, March 1, 1892, suffering from a small indolent ulcer of the left leg. Nothing else was complained of, though the patient presented those appearances generally accorded to a strumous diathesis. The surgical wards

¹ Satisfactory proof of this assumption may be found in my previous paper.

being full, he was placed in a medical ward in which were two cases of typhoid fever. His bed stood almost directly opposite to those occupied by the typhoid fever patients. At the time of his admission the fever patients had nearly reached the period of convalescence, the temperature having become nearly normal. These cases had been well-nursed and disinfection thoroughly carried out: stools, bed-pan, clothing, etc., having been carefully disinfected.

One month after admission, March 31st, the patient, whose temperature had previously been normal, developed an evening rise of temperature to 102.2° , with morning remission. The temperature then defervesced slightly for three or four days, and afterwards pursued a typical typhoid course, as may be seen by a glance at the temperature chart. During the fastigium, temperature shifted between 102° and 105° .

On April 10th, rose-colored spots were first seen, these being subsequently supplanted by a fresh crop; the spleen was now slightly enlarged. During the whole course of the disease there was no marked abdominal tenderness; only slight tympanites; no active delirium. The bowels were slightly constipated, nothing having been passed except by enemata until April 19th, when the bowels moved three times. The stools were small, unformed, of a yellowish color. The tongue almost from the beginning of the disease was dry, brown, and very sore. On the 15th of the month the temperature arose to 105° , which was coincident with slight dulness over base of lungs posteriorly, and the presence of subcrepitant râles over same areas. This condition was associated with diffuse bronchitis.

On the 20th the temperature began to decline and reached normal on the morning of the 26th, with evening rise to 101.4° . The lungs cleared up readily and were entirely free from abnormal sounds on the 26th. May 3d, morning and evening temperature reached normal, after which the case pursued an uninterrupted convalescence. The ulcer of the leg still persists. There was nothing peculiar in the treatment employed.

It cannot be doubted, I think, that infection took place after the patient was admitted to the hospital; and if this be true, it is quite probable that this case was the result of direct contagion, since no other instances of the disease have been known to originate in the hospital. Such cases as herein described should receive the attention of the profession; and it seems to me that their calm, dispassionate consideration would lead to the opinion that special wards for the management of this disease should be provided and utilized, in connection with our general hospitals. As elsewhere stated: "Under these conditions, and under these conditions only, is it possible to carry out, to the entire satisfaction of the sanitarian, every precautionary measure known to medical science against the propagation and mischievous work of the subtle typhoid bacillus. The attention of the physician and nurse must be concentrated upon the fact that the disease is both infectious and contagious, and upon the preventive measures calculated to obviate its dissemination."

GASTRO-INTESTINAL DISEASES IN THE HOSPITAL DURING THE SUMMER OF 1892.

By W. E. HUGHES, M.D., PH.D.

THE past summer has witnessed an unusually marked epidemic of gastro-intestinal diseases. Not only were these diseases prevalent to an extreme degree throughout the city of Philadelphia, but they ran riot in the surrounding country and towns, appearing at the same time and pursuing much the same course. This widespread occurrence would seem to point to some common and far reaching cause, but this cause must be left somewhat undetermined. While some facts in the incidence of the diseases point towards a contagion, the origin of the great majority of the cases cannot be explained in this way. The meteorological conditions did not vary markedly from those of the average summer. The rain-fall was, however, somewhat less than usual, and it is possible that drinking water deranged by this small rain-fall may have been an important element in the causation. With one important exception, to be mentioned later on, it was impossible to establish any distinct connection between drinking water and the diseases. There is, however, another possible cause, to which the epidemic may be attributed, though this is rather a matter of conjecture than a fact capable of positive demonstration—that is, the grippe. The fact that similar conditions seem to have followed the grippe in other countries, most notably in Australia, lends to this hypothesis a certain air of plausibility. It must be confessed, however, that most careful investigation failed to establish any clear connection between a previous attack of the grippe and the cases of gastro-intestinal diseases under consideration. The diseases were severer, as would be expected, where a previous severe attack of grippe had left the patient somewhat debilitated, and so less able to resist well another disease. The causes, then, of the present epidemic must be left indefinite, except that the grippe may have left conditions

favorable to its development, and some peculiarity in the drinking water may have determined the outbreak. In some of the cases, indeed, there were symptoms strongly suggestive of the grippe—a predominance of nervous symptoms, more prostration than the disease itself would seem to warrant, and a prolonged convalescence—but these symptoms were by no means universal. The following tables will serve to illustrate the preponderance of gastro-intestinal diseases in the hospital as compared with the summer months of preceding years, as well as, to a certain extent, the sequence in which the diseases occurred; still, to illustrate this perfectly, a certain amount of extra hospital experience must be added.

	1887.			1888.			1889.		
	June.	July.	August.	June.	July.	August.	June.	July.	August.
Cholera Morbus .	8	1	1	8	1	1	1	1	4
Diarrhœa	6	9	17	4	5	7	8	5	8
Typhlitis . . . .	..	..	..	..	..	..	..	..	..
Dysentery	2	4	1	8	2	4	..	1	5
Typhoid Fever .	8	8	4	8	11	2	5	9	7

	1890.			1891.			1892.		
	June.	July.	August.	June.	July.	August.	June.	July.	August.
Cholera Morbus .	8	..	2	..	..	2	12	2	..
Diarrhœa	6	4	2	2	2	4	26	8	5
Typhlitis . . . .	..	1	1	1	..	..	2	2	..
Dysentery . . . .	..	8	..	2	6	6	8	49	14
Typhoid Fever .	4	5	..	4	1	8	8	2	18

These tables are for the medical wards alone; were the cases originating in other wards added, it would show a still more marked increase in gastro-intestinal diseases during the present year. But, even as it is, it will be noticed that they are enormously increased over preceding years, there being about three

times the number occurring the year most closely approaching in numbers 1887. The greatest increase is in dysentery, as might probably be expected, as this, being a severe disease, is most likely to bring its victims to a hospital ward. It is possibly worthy of note that in 1891, although there was by no means an epidemic of dysentery, the cases were distinctly increased over preceding years.

Supplementing these tables by extra-hospital experience, the course of the epidemic becomes very clear. It began in May with cases of cholera morbus, which increased very rapidly in number, reaching the maximum early in June. About the time cholera morbus became very prevalent, cases of diarrhœa began to appear, till, by the middle of June, this was the prevailing disease. Gradually the diarrhœa became mere dysenteric in type, till, finally, towards the end of July dysentery had almost completely supplanted the diarrhœa. As the dysentery subsided, cases of a continued fever, some of them unquestionably typhoid fever, many of them of doubtful nature, grew prominent.

Cholera Morbus.—In the beginning the cases were widely distributed and few in number, but they very rapidly increased, till soon the disease was exceedingly prevalent. Had the possibility of choleraic infection been present, as it was in the autumn, there would surely have been the liveliest alarm excited. Many of the cases were of more than ordinary severity, being attended by serious collapse and muscular cramps. In the less severe cases myalgic and neuralgic pains were quite common, but not very prominent. Convalescence was, as a rule, rapid, but in the small minority there was a prolonged and sometimes troublesome depression following. The cases were universally distributed, and could not, as a rule, be attributed to any error in diet.

Diarrhœa.—In the early part of the epidemic this was of the ordinary type, later it became somewhat dysenteric in character, or even merged into true dysentery. It was distributed much as the cholera morbus, but was apparently no more likely to occur after a preceding attack of cholera morbus, and was equally causeless. Many of the cases were rather intractable to treatment, but there was no excessive exhaustion, although the convalescence was generally somewhat prolonged. The prominence of diarrhœa was only among adults, there being even less than the ordinary number of cases at this time of the year in children.

This is the more remarkable as children seemed more susceptible than usual to cholera morbus.

Typhlitis.—During the time that diarrhœa was most prevalent occurred a number of cases, large as compared with other years, but only a small fraction of the cases of diarrhœa, in which the lesion was apparently a catarrh of the cæcum. While at the onset these cases looked like appendicitis, yet the mildness of their course, their early and favorable termination, and the absence of any symptoms pointing towards the formation of pus, showed them to be of less serious nature and probably merely a form of the epidemic. The prominent symptoms were fever of moderate intensity, quite intense abdominal pain, most marked in the right iliac fossa, and tenderness and induration in the same position. This induration was a constant symptom. It could be clearly mapped out and occupied exactly the region of the cæcum. In some of the cases there was so much pain and such exquisite tenderness as to indicate the almost certain existence of a local peritonitis. The bowels were loose, and in the beginning there was often vomiting. The cases started, as a rule, as typhlitis, though occasionally a diarrhœa would assume a typhlitic form. Saline laxatives, with mild counter-irritation over the tender area, relieved them promptly, although it was not uncommon for the induration to persist for some weeks after the other symptoms had disappeared.

Dysentery.—The only form of the epidemic in which the element of contagion plays an apparent part; it is even here not at all constant, but present sufficiently frequently to be important. While many of the cases originated sporadically and without contact with previously existing cases, sometimes there would be a history of exposure. It was not at all rare to have several members of the same family attacked, not simultaneously but seriatim, the time between the development of the different cases varying within quite wide limits. It seemed, too, that those brought most intimately in contact with the sick were those most liable to be attacked. In the medical wards there were comparatively few cases developed, but those were always in patients lying immediately beside a bed containing a dysenteric patient.

The onset was, as a rule, sudden, with dysenteric symptoms from the beginning. Here there was generally a history of constipation preceding the attack by a few days. Sometimes a diarrhœa ran

into dysentery, but this was generally where the diarrhœa had been neglected or only partially cured.

The symptoms were those typical of dysentery. The fever rose abruptly, rarely running much above 102° F., and, shortly after reaching its maximum, began to decline, not often lasting more than a week or ten days. It was quite common to have the dysenteric bowel symptoms persisting for some time after the temperature had reached normal. Vomiting was not uncommon, and usually indicated a severe case. Tenderness in the left iliac fossa was quite frequently complained of.

Of the complications present there is only one worthy of note,—rheumatism. This was present in about one-sixth of the cases, and was really oftener a sequel than a complication. When it occurred during the actual course of dysentery it was usually towards the end. In a very few cases rheumatism preceded the dysentery. It was generally articular, affecting most frequently the knees, and was mild in type, disappearing promptly under treatment. That there was some definite relation between the dysentery and the rheumatism is proven by its frequent occurrence, and by the fact that most of those attacked had no previous rheumatic history. In none of the cases of rheumatism were there any cardiac complications developed.

The dysentery was mild in type, being fatal only in children and in feeble adults. Children were attacked quite frequently, but in the later stages of the epidemic.

Post-mortem examination showed the usual lesions of dysentery. In all the cases there was an almost universal ulceration of the colon. The lower part of the ilium was frequently inflamed and often ulcerated, the ulcers beginning in the follicles. In addition to the ulceration, there was often a diphtheritic deposit on the surface of the mucous membrane, generally most marked in the small intestine. In no case were there any emboli found.

All the stools examined under favorable conditions from cases of typical dysentery contained living *amœba coli*. Nowhere else than in the stools were they found, possibly because none of the deaths occurred from complications directly referable to the dysentery. Several times was serum from effusions examined, and once pus from a pyopneumothorax, with negative results.

Treatment, it must be confessed, was disappointing. While the disease might be ameliorated, no remedy, and a wide range

was used, could be found that would cut it short. Intestinal anti-septics, sulpho-carbolate of zinc, thymol, salicylic acid, salol, salicin, carbolic acid, arsenite of copper, were useless. Morphia and subnitrate of bismuth were better than any of them. Of the laxatives used, I am strong in the belief that calomel, given in one-tenth grain dose every hour or half-hour, was of most benefit; especially in the beginning of an attack were its good results manifest. Possibly its germicidal action may play an important part in its usefulness. Where there was not much weakness, salines, pushed till a natural stool was gotten, were beneficial, but where there was weakness their use was too depressing, and castor oil was superior. By the use of enemata the best results were obtained, warm water being on the whole superior to everything else. In using an enema the patient had best be placed with head low and hips elevated, and then the maximum forced in that will be borne. Not less than two quarts should be used, if possible, and preferably more. The enema must be repeated from two to six times in the twenty-four hours, depending largely on its effect and on the sensations of the patient. Solutions of bisulphate of quinine, varying in strength from five to twenty grains to the pint, were tried, and, while they were beneficial, no better results were obtained than by the use of water alone, and they unquestionably had the distinct disadvantage of being more painful. Solutions of nitrate of silver, while of some possible benefit in the late stages, early were so irritating as to be injurious. Sedatives applied to the rectum were at least grateful to the patient. Of these, suppositories of iodoform seemed to produce the best results, although injections of small quantities of ice water, or even ice suppositories, relieved pain in a most happy manner. To summarize, the treatment that was found most efficacious was morphia and subnitrate of bismuth by the mouth, calomel as a laxative, enemata of warm water, and suppositories of iodoform.

The only department of the hospital in which dysentery originated largely was the insane wards. Here, on the female side, out of a total population of four hundred and eighty, there were seventy cases; on the male side, out of a total population of four hundred and eighty-six, there were seventy-eight cases. There could have been no direct contagion here, for as soon as a case developed it was isolated. But an almost positive connection was traced between drinking water and the epidemic. In the yard

was a well, which was largely resorted to by the patients, and it was apparently those who used this water who were the ones attacked. Examination of the water showed large numbers of living *amœba*, identical physically with the *amœba coli* found in the dysenteric dejections. No experiments were made, however, with this *amœba*, and it is not possible to say that it was really the *amœba coli*. Here, where the onset could be carefully studied, there were many cases with a distinct prodromal period, with symptoms of illy-defined sickness, general lassitude, uneasiness, often slight abdominal pains preceding, by from twelve to thirty-six hours, the actual dysenteric symptoms. The death-rate was higher than in the medical wards, owing to the class of patients attacked. It was thought in the male wards that a decided improvement in the mental condition accompanied and followed the dysentery, but this was not noticed in the female wards. No complications other than the rheumatism above mentioned, worthy of note, were observed.

Typhoid Fever.—Under this heading in the tables I have placed a number of indefinite cases, many of them only doubtfully referable to this disease. Accompanying and following the epidemic of dysentery, there was an unusual number of cases of continued fever. A few of these were undoubtedly typhoid fever, at the extreme were cases when the fever was equally undoubtedly due to a general catarrhal condition. Between the two extremes were all varieties of gradation. I am inclined to regard these intermediate cases as not typhoid, but catarrhal in nature, a variety of the general epidemic. They were very similar to one another, and differed from typhoid in originating more suddenly, being of milder intensity and shorter duration, and running a less regular course. The only notable mental symptom was a troublesome sleeplessness, there was neither hebetude nor delirium. While the eruption present in almost every case was strikingly suggestive of typhoid, it was not typical. Coming out about the end of the first week, it did not appear in regular crops, and was more irregular in shape, and of a higher color than the typhoid eruption. After a few days the spots had a tendency to become acuminated or even minutely pustular. In one case the eruption was most strikingly suggestive of typhus fever. This case, too, ran a course rather typical of typhus fever, terminating abruptly about the end of the second week. In none of the cases was

there any marked enlargement of the spleen, in most of them its size was apparently not at all increased. Throughout all of them ran a prominent tendency to pulmonary involvement, showing itself in marked bronchitis, slight catarrhal pneumonia, or pleurisy.

In addition to these probable cases of catarrhal fever, there was a marked tendency for other acute diseases originating at this time to take on this condition, where no suspicion of typhoid fever could exist. Often the condition became so prominent as to mark the original disease. A few cases of this catarrhal fever ran into dysentery, others again followed it. The bulk of the evidence seems to be in favor of catarrhal rather than typhoid fever; if they were the latter, they were so inextricably mixed up with the epidemic as to be inseparable from it.

To Dr. W. S. Carter my thanks are due for invaluable aid in the observation of cases and the careful collection of statistics.

CHRONIC PARENCHYMATOUS NEPHRITIS, WITH URÆMIA; NO ALBUMEN.

SERVICE OF DR. WM. E. HUGHES.

REPORTED BY JAMES F. LEYS, M.D., RESIDENT PHYSICIAN.

H. T., a mechanic, aged fifty-one, married. No specific history. Of alcoholic habit. Distinct history of acute alcoholism and nephritis in the Philadelphia Hospital, in 1885, with apparently complete recovery and discharge. March 21, 1892, in a fit of mental aberration, patient had gone on the roof of his house and fallen from it into a snow-bank, a distance of perhaps twenty feet. He was picked up and brought to the hospital by the police patrol.

On admission, March 21st, at seven P.M., he was deeply stuporous, could be sufficiently aroused to say "yes" and "no," but nothing more. Temperature, 99.8°; pulse 80, of fair tension but small force and volume; respiration, 16, good. No marks of injury except two insignificant bruises on legs. Skin pale, warm, and dry. Legs quite œdematous; thighs and abdominal and thoracic parietes slightly puffy and inclined to pit on pressure. Pupils strongly contracted and immobile. Breath distinctly urinous in odor. The heart-sounds were weak and distant. Lungs clear. Urine perfectly normal in appearance: dark amber, acid, specific gravity 1016, small mucous sediment, no albumen (heat and ring tests), no casts found.

A diagnosis of uræmia was made upon the history and symptoms. Ammonia and croton oil were given at once, blood (twelve ounces) was drawn, and a hot-air bath (one-half hour) given. The skin became moist without free sweating. Stimulant and diuretic treatment was begun and continued throughout the case. In the first twenty-four hours the temperature fell to normal, the pulse rose steadily to one hundred and improved in volume, the bowels moved freely. Urine, thirty-six ounces, contained no albumen. Pupils became normal. Patient was roused sufficiently to say that

he felt better. In the next twenty-four hours the œdema disappeared entirely, the pulse fell to seventy-six, and improved in quality; the urine rose to forty-five ounces. Patient grew bright, took nourishment well, talked rationally, but he had no recollection of his accident nor of the beginning of his sickness. March 25th, the urine fell to thirteen ounces, all the bad symptoms returned except the œdema, and again the patient made a temporary rally under vigorous treatment. The urine did not increase, however, though it still showed no trace of albumen. March 27th, the temperature rose to 100°. Pulse 122, thready. Respiration rapid, shallow, gurgling. Patient died at six A.M., of pulmonary œdema. Urine, eleven ounces, drawn post-mortem, was found distinctly albuminous, and two granular casts were seen in a prolonged search.

Autopsy ten hours after death.—Body of stout white man, 5 feet 9 inches, 190 pounds. Rigor mortis distinct. No injuries. Some cyanosis of lips. Pericardium, pleura, and abdomen all contained some excess of fluid. Heart: right ventricle dilated, entirely filled with white clot, wall weak and seat of much fatty deposit. Left ventricle strongly contracted, containing a little post-mortem clot and fluid-blood, walls of good thickness and consistence. Passive congestion and œdema of both lungs, most marked in left. Fatty infiltration of liver. Large, white kidneys,—right, 8½ ounces; left, 10 ounces. Capsules distinctly adherent; surface and section a light, mottled pink; cortex much thickened, pale; pyramids congested. Remainder of urinary tract free from disease. No injury discoverable in scalp or skull. Brain showed a pale cortex, œdema of meninges and ventricles, no hemorrhage or other lesion. Nothing noteworthy in any other organs.

Any facts bearing upon the diagnosis of uræmia are of paramount importance to the clinician, inasmuch as it is a condition more frequently amenable to prompt and vigorous treatment than any with which it is likely to be confounded. The subject of accidental or cyclical albuminuria in the absence of kidney disease has been investigated by Frerichs, Vogel, Ultzmann,¹ and many others, and universally recognized by systematic writers. Schreiber's² experiments have proven that such occurrence is probably always due to disturbances of circulation, as is albuminuria in cardiac disease, after epileptic convulsions, etc. Grainger Stewart and Leube³ have established that not all urines contain albumen.

¹ Frerichs, *Die Bright'sche Nierenerkrankung und deren Behandlung*. Brunswick, 1851. Vogel, *Virchow's Handbuch der spec. Pathol. und Therapie*, vol. vi. pp. 2, 709. Erlangen, 1865. Ultzmann, *Wien. med. Presse*, vol. xi. p. 82, 1870.

² Schreiber, *Archiv für experim. Pathol. und Pharmacol.*, vol. xix. p. 237, 1885; vol. xx. p. 85, 1886.

³ Leube, *Zeitschrift für klin. Med.*, vol. xiii. p. 1, 1887.

Most authors recognize the fact that the quantity of albumen in the urine of persons suffering from uræmic poisoning bears no relation to the severity of the symptoms. We have long known that in some forms of nephritis the urine is likely to contain but a trace of albumen, even in severe grades of the disease. V. Jaksch¹ and others have found it entirely absent at times, chiefly or altogether in cases of contracted kidney. I have seen two cases of this lesion dying of uræmia and coming to autopsy, in which urine entirely free from albumen had been voided within forty-eight hours of death. The absence of albumen for a protracted period in the early stages of chronic parenchymatous nephritis with uræmia has not been mentioned as a possibility in the recent editions of Roberts, Flint, Strümpell, V. Jaksch, Vierodt, and Osler, and I have met with no journal report of such a circumstance. Loomis's "Practice of Medicine" contains the emphatic statement that in uræmia the urine will always be found to contain albumen, and that its presence or absence may be taken as a finality in the differential diagnosis between uræmia and other conditions producing similar symptoms.

¹ V. Jaksch, *Deutsche med. Wochenschrift*, vol. xiv. Nos. 40 and 41, 1888.

SUPPURATIVE OTITIS MEDIA, WITH PERFORATION, COMPLICATING ENTERIC FEVER.

SERVICE OF DR. S. SOLIS-COHEN.

REPORTED BY CLARIBEL CONE, M.D., RESIDENT PHYSICIAN.

THE following brief note of a complication of typhoid fever of rather rare occurrence in this hospital is deemed worthy of record.

F. H. M., white, aged thirty-two years, was admitted to the men's medical department, September 28, 1892. The patient exhibited undoubted symptoms of typhoid fever, associated with slightly impaired hearing, of recent origin. There was no pain, no tenderness on pressure in the region of the ear. Hearing became progressively worse until October 9th, when there was a moderate discharge of pus from the external auditory meatus of the right ear (fifteenth day of the disease). After this time the nervous symptoms, including delirium, became pronounced. The temperature, which had showed a slight tendency downward, again began to rise gradually, as if due to some intercurrent condition. The otorrhœa continued, being somewhat controlled by the application of warm neutral solution of hydrogen dioxide. Examination showed perforation of the tympanic membrane of the right ear; some thickening of the left tympanum, which was otherwise normal. In the course of a week, hearing improved with the subsidence of general symptoms. Insufflation of boric acid was then practised. The entire course of the fever was twenty-eight days. Convalescence took place without further delay; and when the patient was discharged, there was no otorrhœa, though perforation persisted.

NOTE ON THE LOCAL USE OF THE SALICYLATES IN THE TREATMENT OF SCARLET FEVER.

BY JULIUS L. SALINGER, M.D.

HAVING observed the beneficial action of the salicylate of soda and salicylic acid applied locally in ointment, in eczema and other inflammatory conditions of the skin, it occurred to me to try their efficacy in the most pronounced type of inflammation of the skin, namely, scarlet fever. Accordingly, the salicylates were used in ointment, and no other medicament employed, the dose varying with the age of the child; but no stronger ointment being used than twenty grains to the ounce of oxide of zinc ointment. Mostly weaker ointments were used, and the salicylate of soda being preferred. It may be well, here, to detail a case as an illustration:

Herbert S., aged four, was attacked with typical scarlatina, beginning with a chill, vomiting, and high fever. Pulse, one hundred and fifty per minute, thready and weak. Early in the course of the second day the rash appeared, which was of the ordinary scarlet (boiled lobster) color. Involvement of the throat and glands at the angle of the jaw were also among the early manifestations. The temperature ran very high, ranging between 104° and 106° F.

The child was delirious the greater part of the time, and when not so complained of great itching and burning of the skin. He did not take medicine or food, and rectal alimentation had to be resorted to. In this condition an ointment was used, containing twenty grains of salicylate of soda to the ounce of oxide of zinc ointment. This ointment was well rubbed into the inflamed skin every four hours. It was observed that after several inunctions of the ointment the color of the rash began to fade in spots, and that soon after desquamation set in. The temperature fell about one and a half degrees after the second inunction. The child subsequently recovered, with marked otitis media as a sequel,

which up to this time, although nearly three years have elapsed, is not entirely well, having resisted treatment by the best specialists both in Philadelphia and New York.

In eight other cases in which I have tried this treatment, and in three other cases which have been placed at my disposal by medical friends, this treatment has proved very beneficial. It is certain that the marked itching and burning of the skin is almost instantly relieved, and the period of desquamation is ushered in sooner than in cases not so treated, and the temperature is lowered. In the cases observed by me desquamation usually began on the fourth day after the appearance of the eruption, which is certainly sooner than in cases not so treated. Of the fact that the salicylates are speedily absorbed, there can be no doubt, as the patients have often complained of marked ringing of the ears (*tinnitus aurium*) soon after a somewhat copious inunction. A notable fact, and one that will warrant further investigation, is that in none of the cases investigated (eleven in all) was there any sign of albuminuria. Careful and constant testing failed to show even a trace of albumen. Nor were there any other signs of kidney affection present. Whether this was mere coincidence, or whether it be due to the salicylates, I am at present not prepared to state; I only note the fact. Shakhovsky, in Keating's "Cyclopædia of Diseases of Children," Vol. I., page 574, goes so far as to state that: "salicylic acid will prevent all complications, such as uræmia, dropsy, diphtheria, anginas, and lymphadenitis, and will remove them when present." That it will not prevent or in any way favorably influence the disease of the middle ear, I have had ample opportunity of testing. While by no means claiming for the salicylates used locally the place of a specific remedy, yet I hold that their judicious use favorably influences the disease, in as far as the eruption fades sooner, the itching and irritation of the skin are removed, the temperature lowered, and possibly the kidney complication prevented.

REPORT ON CHOLERA AS IT OCCURRED IN THE PHILADELPHIA HOSPITAL IN THE YEAR 1866.¹

BY CHARLES W. MUNN, M.D.

DURING the month of July, the diarrhœa prevailed quite extensively in the house. Nearly all the cases which occurred yielded promptly to treatment; occasionally a case would present itself which would continue notwithstanding all efforts at subjugation; all, or nearly all, enteric affections during the month were dysenteric in character. During the month, ten cases of enteric disease resulted fatally. Of these ten cases, seven were acute dysentery, two acute enteritis, and one Asiatic cholera. This, the first case diagnosed to be cholera, originated in the city, and died in the White Women's Medical Ward on July 24, 1866. It will be interesting to trace for a few minutes the history of this case. A family consisting of father, mother, and daughter, sixteen years of age, were admitted to medical wards, July 19, 1866. They gave the following account of themselves: On Saturday, the 14th, for dinner they ate heartily of boiled cabbage; they all had enjoyed perfect health to this date. The family included (in addition to those mentioned above) a son twelve years of age. The next day all were taken ill with purgings and vomitings, pains in the calves of their legs, and abdomen. The boy died July 16th. When admitted all had diarrhœa and occasional vomiting of yellowish colored fluid and exceedingly offensive. The same character of discharge occurred per anum. Nothing like rice-water discharges took place. All suffered from pain in abdomen and calves of legs, spasmodic in character. The skin cold and clammy. Pulse full and accelerated. The father died on the 21st,—was thought to have died of enteritis, and so recorded. The mother died on the

¹ Dr. Munn was in 1866 one of the resident physicians. This excellent report on cholera is taken from the record books of the Philadelphia Hospital. We have thought that it would be instructive to reproduce it at this time, when cholera is present abroad and threatening again to invade this country.

21st. In both cases the symptoms continued until succeeded by a comatose condition, which terminated in death. The daughter began to improve soon after admission and recovered perfectly.

The cases were treated by flaxseed poultices to abdomen; chalk mixture to control diarrhœa; chloroform to allay pain; beef-tea and milk punch to sustain the powers of life, which, in father and mother, failed rapidly. A post-mortem examination was made on both bodies, in each case, within twelve hours after death. The weather was very warm; the thermometer marked from 92° to 94° in the shade. The temperature on the 6th, 7th, and 8th of July, 1866, marked by the thermometer, was 100° in the shade, being the highest point reached in many years. Both the bodies had a peculiar ashy, dirty look, and very gaseous decomposition had commenced in both cases at this short time after death. Nothing was marked as peculiar in any of the viscera except those of the abdomen. The stomach and intestines were exceedingly distended with gas, and when punctured emitted a horribly fetid odor. The stomach of both patients contained cabbage in a softened condition, but not digested; the cabbage had undergone but little change since being swallowed, and some portions had considerable firmness when felt gently between the fingers; it had been in the stomach of the man seven days, and that of the woman ten days. There was intense injection of the mucous membrane of the stomach, and softening; in some places there were apparent perforations of this membrane. The stomach contained a few ounces of liquid of a yellowish, dirty color, and had the smell of the whiskey given; the intestines were infected, softened, and contained a yellowish fluid; the vessels of the mesentery stood out in bold relief. It is difficult to imagine a more thorough congestion of these parts than existed in these cases. The blood was dark and thicker than generally formed after death. When a vein was cut it oozed slowly out.

No case of cholera originated in the house during the month of July. During the month of August there were treated seventy-two cases of cholera, of which fifty-one died and twenty-one recovered,—a percentage of 70.8. There died also during the month in the house, of other enteric diseases, twelve persons of acute dysentery, ten of acute diarrhœa, and one of acute enteritis. August 6, 1866, a new building was erected by order of the Hospital Committee near the building formerly occupied as a small-pox hospital.

This building and the old small-pox hospital were fitted up with furniture, and all the patients then in the wards that were afflicted with cholera were transferred to these buildings. All cases occurring in the house or arriving from the city were immediately removed to these cholera wards. In the construction of the new building every effort was used to obtain a thorough ventilation. The last lower eight inches of sheathing were omitted; the sheathing around the old building was also removed. This precaution, with that of leaving an opening the whole length of the roof covered by a supplemental roof, insured a thorough change of the air of the buildings; as little communication as possible was allowed between these buildings and the remainder of the house.

Patients were admitted to these buildings, August 8th and after, as long as cases continued to occur. Three of the assistants employed in the care of the patients contracted the disease, two of whom died. Catharine Gormley died August 10th. She was an assistant in the female medical wards, and volunteered to go to the cholera hospital and take charge of the sick. She was in good health to her appearance when she left the medical ward; had been in the house a number of months as an assistant. Kate Nugent, wife of one of the assistant watchmen, was also employed about the women's medical ward. She also volunteered to take care of sick of cholera; was a stout young woman, apparently in the prime of health. She died on the 19th of August. Considerable difficulty was experienced in procuring competent nurses to take charge of the sick after those deaths. These cases seem to offer evidences of the contagiousness of cholera. A drink of sulphuric acid was employed by those engaged in the care of the cases after these deaths. To the termination of the epidemic no other case occurred among those engaged in nursing the sick, nor did any complain of diarrhœa. How much is to be attributed to the prophylactic influence of the sulphuric acid I am unable to decide. The facts are as stated, and are worthy of careful thought, and the experiment ought to be repeated should an epidemic ever occur.

During the month of September seventeen cases were treated, twelve of which proved fatal,—a percentage of 70.5. Five fatal cases of acute diarrhœa also occurred during the month.

During the month of October ten cases were treated, six of which proved fatal,—a percentage of mortality of 60. No deaths from any other enteric disease.

During the month of November four cases were treated; one proved fatal; percentage of deaths, 25. The last case was treated November 23, 1866. This case was admitted on that day from the city. Last case (having its origin in the house) occurred in the men's out wards, October 7, 1866. The first originating in the house occurred in men's medical, August 1, 1866. Number of days during which cholera prevailed as an epidemic in the house, sixty-eight. Total number of cases treated, one hundred and four. Number of deaths, seventy-one. Number of recoveries, thirty-three; percentage of mortality, 68.26. The following table briefly illustrates its history in the house:

TABLE I.
SHOWING WHERE CASES ORIGINATED.

1866.		HOSPITAL DEPARTMENT.								Children's Hospital.	Out Wards, Almshouse.		Insane Department.		City.	
Months.	White Men's Medical.	Black Men's Medical.	White Women's Medical.	Black Women's Medical.	Men's Surgical.	Women's Surgical.	Black Obstetrical.	White Nursery.		Male.	Female.	Male.	Female.		TOTAL.	
July.	1	1	
August . .	3	1	2	1	1	1	1	.	.	9	.	4	32	17	72	
September .	.	.	1	.	.	.	.	.	.	2	.	.	3	8	17
October	1	.	1	.	.	.	8	10	
November	4	4	
Total	104	

TABLE II.

TABLE SHOWING THE TOTAL NUMBER OF CASES, DEATHS, AND RECOVERIES, WITH PERCENTAGE OF MORTALITY EACH MONTH.

Months.	Cases.	Deaths.	Recoveries.	Percentage of Mortality.
July	1	1	.	100.
August	72	51	21	70.88+
September	17	12	5	70.58+
October	10	6	4	60.
November	4	1	3	25.
	104	71	33	68.269+

By the above table it will be seen that two-thirds of the cases occurred during August, also that five-sevenths of the deaths took place during this month; that the mortality, excluding the case occurring in July, was thirty per cent. greater than any other month. It will also be observed that the case became of milder type each succeeding month until its disappearance. By the table No. 1, it will be seen that thirty-six of the cases treated were brought from the city; of the sixty-eight cases originating in the house, forty-two occurred in the insane department, thirty-eight on female side, four on male side; twelve cases came from the men's out wards; no case originating on female side; fourteen cases originated in the hospital department; not a single case occurring in the children's department. The exemption of this part and the women's out wards is remarkable. The sanitary conditions of these parts were inferior to the hospital, but superior to men's out wards, which were the worse condition parts of house. The number of cases originating in the insane department is large when compared with the other parts of the institution; the great excess of cases in the female side strikes the attention! The number of patients on the male side for the month of August, 1866, averaged two hundred and eleven; average of females three hundred and seventy-eight, an excess of female population of one hundred and sixty-seven. The space occupied held about the rate of ten to eleven,—the female being the larger. The sanitary conditions were fully as good (except the crowding) in the female as on the male side. Can we account for the number of cases, satisfactorily, being so much in excess on the female side and its entire absence in other parts of the house, unless we allow it to be contagious?

Treatment.—Many of the cases brought from the city were in collapse when they arrived, and two were dead. Most of the cases coming from insane department were also in collapse. The difficulties experienced in detecting the cases in the insane in their incipency were very great, and many cases eluded the observation of the nurses, either from want of attention or otherwise, until they were almost dead. The conditions of a large number of patients received in the cholera hospital for treatment must be taken into consideration in reviewing the mortality. Sulphuric acid was made use of in the insane department by Dr. Curtin as a prophylactic with the following result: One or more cases of cholera had

appeared each day for a number of days prior to the commencement of the experiment. The sulphuric-acid lemonade drink was given to all for five days, during which time no case of cholera appeared; it was intermitted four days for want of sugar. Two cases made their appearance during this period. It was again resumed and continued. No other case occurred, except one patient who obstinately refused to drink the acid solution. Fifteen drops of the dilute acid were given three times daily. How much depended on the influence of the acid, or whether there was a coincidence, it is impossible to say. The experiment was inaugurated August 29th. The number of patients was reduced in the wards in which the cholera was most prevalent about the same time, and the ventilation improved. These circumstances, together with the decline of the disease, must have their true influences appreciated, if possible, in judging of the amount of the immunity secured by the acid influences. Every hygienic and sanitative measure possible was adopted throughout the house to limit the spreading of the disease.

The measures comprised cleanliness, ventilation, and the free use of disinfectants. All the articles recommended by any member of the profession as any way specific in their effects, if there was any reasonable probability of the patients being benefited by them, were tried. Of those tried were castor oil, hyposulphite of sodium, sodium chloride, calomel in large doses, quinine, together with Dr. Chapman's ice-bags. None of these remedies were found satisfactory, and were not relied upon. To control the dejections, opium, acetate of lead, and camphor were found, after repeated trials, to be most worthy of confidence. The whole list of astringent substances was run through, but no article was found to substitute those above mentioned. Injections of twenty grains of tannic acid were tried with good effect.

To control the vomitings, nothing proved more effectual than small doses of calomel, one-twelfth of a grain every few minutes. Various means were instituted to restore action and warmth to the cutaneous surface,—frictions with and without turpentine, mustard poultices, heat by bricks, blankets, oat-bags. Hot baths, etc., were employed. As soon as the stomach would retain them, stimulants and nutriments were used. Chloroform was largely used in teaspoonful doses with good results. The treatment must be considered empirical, and was unsatisfactory throughout.

A CASE OF MULTIPLE MOVABLE BODIES WITHIN THE KNEE-JOINT.

By W. JOSEPH HEARN, M.D.

E. T., male; age, thirty-four years; white; occupation, laborer, was admitted to the nervous ward of the Philadelphia Hospital on July 16, 1891. He was suffering from an apparent spinal sclerosis. His history was as follows: After working for five months in cold water, he was attacked with periodical spasms of pain in the legs; but seven years previous to this he had lifted a heavy weight and strained his left knee, which left that joint in a more or less crippled condition.

In December, 1891, he was transferred to the surgical ward; and on examination of the knee, which was greatly enlarged and absolutely immovable on account of the most excruciating pain, there were found movable bodies in the knee-joint. From external examination but three or four bodies could be detected. He was absolutely bedridden, and gladly submitted to an operation that promised relief. He was prepared for operation for the following clinic.

After trying to fix a body with a strong needle in order to do the subcutaneous operation, that method was abandoned on account of the hardness of the body and the impossibility of penetrating it.

A free incision was then made on the inner side of the ligament of the patella, when there escaped from the joint about eight ounces of opaque and tenacious synovial fluid. When the fingers were introduced into the joint, it was found to be literally filled with bodies, each attached to an enlarged and elongated fringe of the synovial sac. Many were broken off, but some were so strong that scissors were necessary to divide the strong cords that attached them.

Two large bodies were found wedged in between the femur and

tibia, thus making motion almost an impossibility. A similar incision was made on the outer side of joint, both to assist in reaching all the bodies, which were twenty-five¹ in number, and to afford free drainage, should the operation be followed by inflammatory effusion.

The joint was douched with hot distilled water, no antiseptic wash being used inside synovial membrane.

The membrane, which was thickened, was closed with buried catgut sutures, and the skin and connective tissue brought together in the usual manner with silk.

For drainage, a few strands of catgut were passed through the joint.

An antiseptic dressing was applied, and the joint was fixed by an immovable splint (plaster of Paris).

His temperature rose to 101° the next day. From that time until complete recovery, which occurred in two weeks, the temperature was but slightly above normal. He has now, nearly one year after operation, a perfectly movable joint with but little pain.

The origin of these bodies, which were ossified more or less, was due to the proliferation of normal cartilage cells in the fimbria of the synovial membrane. This proliferation was stimulated by the subacute inflammation which followed the injury to the joint seven years previous. His standing posture is now good. His pupils react well. Ankle clonus, normal. Slight increase of knee-jerk of left leg, the right leg normal. There was no syphilitic history, but a history of mild gonorrhœa many years previous to his admittance to the hospital.

¹ This is the largest number reported, except the case of Dr. Berry, of Kentucky, in Agnew's "Surgery."

FRACTURES OF THE RIBS.¹

By L. W. STEINBACH, M.D.

I BRING before you two patients, to illustrate a surgical affection of frequent occurrence. Both men have recently sustained fractures of the ribs. Fractures of the ribs comprise about seventeen per cent. of all the fractures coming under the surgeon's notice; and this ratio would be augmented if all those who are similarly injured sought medical aid. It may be safely stated that no injuries to the osseous structures escape our attention as often as those under consideration, a fact well known to anatomists, who frequently discover in the cadaver old fractures of ribs which had not been diagnosed during life. Some sustain such a fracture without being aware of the nature of the injury, or do not deem it of sufficient gravity to consult a physician. The figures quoted above are gathered from hospital reports, including, of course, only such cases as apply for treatment. Fractures of the ribs result from external violence, either direct or indirect, and very exceptionally from muscular action. The most frequent causes are direct violence, a direct impact of external force; they may be produced by a fall against a hard projecting surface, by the blow of a fist, the kick of a horse, or, as I have observed at sea, in the case of a passenger who, by being violently thrown against the bulwarks of the vessel during a storm, sustained fracture of two ribs. As examples of indirect force causing these fractures we may quote violent compression of the thorax, by which the ribs are excessively bent, and their elasticity overcome at some point, thus causing fracture. This may be illustrated by the forcible bending of a stick until it breaks. It generally happens when the thorax is traversed by the wheel of a wagon, or is caught between the bumpers of railway cars, or the body is pressed against a wall by a horse, or by crowding in panic-stricken assemblages. It is

¹ A clinical lecture delivered at the Philadelphia Hospital.

sometimes difficult to determine whether a direct or an indirect force was exerted in the production of a fracture. When ponderous substances are precipitated upon an individual, as happens in mines or quarries or in the digging of embankments, a rock may strike a rib and fracture it directly, or masses of rock or earth weigh the thorax down and break the ribs indirectly. Fractures by muscular action are rare, and may happen as follows: a person slips, and in the effort to prevent a fall produces sufficient tension on the thoracic muscles to fracture a rib at the insertion of the muscle. Any of the ribs are liable to be fractured, and several may be broken simultaneously. The middle ribs break most frequently. If the chest is subjected laterally to pressure or a blow, the superior ribs will break easier than the lower ones on account of their greater rigidity. The first and second ribs are very rarely broken, because they are well protected by the clavicle and scapula.

To intelligently consider how the variously exerted forces may produce these fractures, it is essential to possess a thorough knowledge of the anatomical construction of the thorax, into the formation of which the ribs so largely enter. We have here an osseous basket, with its horizontal segments held in position by the firm spinal column behind, and by a less perfect support the sternum in front, to which the ribs are attached by their cartilages, either individually, as in the true ribs, or through the intervention of the common cartilage of the lower ribs, while the eleventh and twelfth pairs have no anterior attachment, and are therefore termed floating ribs. The elasticity of the ribs is great. Professor Hyrtl, in his incomparable work on anatomy, speaks of the children of the Bedouins of the desert using the ribs of camels for bows. The arrangement of the ribs gives great elasticity to the thorax, especially in young individuals, where the bones themselves are pliable, permitting of great compression of the thorax without endangering the integrity of the ribs, and in children and infants it is difficult to break the ribs. In illustration, I shall quote a recorded case of this kind, where a child, five years of age, was run over by a wagon, the wheel passing over the thorax, and compressing the aorta, caused rupture of the left ventricle and death, and yet no fracture of the ribs. In old people, where the earthy substance preponderates and the cartilages ossify, or in those affected with certain diseases of the bones, slight forces, as even the turning over in bed, have been sufficient to produce fracture of the ribs.

Is it always easy to recognize a fracture? No. We once had a woman in this hospital who was supposed to be suffering from internal injuries, and the case was diagnosed as one of pneumonia, due to injury of the lung. At the post-mortem we found that quite a number of the ribs had been broken. I quote this case to you to illustrate the exception.

How do we recognize a fractured rib? The symptoms are, as in fractures of other bones, crepitus, disordered function, preternatural mobility, and pain. The first of these—crepitus—can usually be located, being a sensation perceived both by touch and the sense of hearing, and may be heard or felt by careful examination. Presupposing a sensitive spot to be the seat of a fracture, we apply the finger-tips to either side, and by alternate pressure we may get crepitation. If this fail, auscultation over the supposed site of fracture may convey a grating sound to the ear. It is frequently difficult to detect crepitus, owing to the thickness of the muscles or of the adipose tissue, or to the location of the fracture immediately beneath the mammæ in the female. Sometimes the patient hears the rib snap suddenly, and occasionally feels or hears the crepitus, and can locate the seat of fracture himself. Pressure upon the spine, with counterpressure upon the sternum, causing pain at any point in the course of a rib not directly pressed upon, indicates a fracture at that point, the pain being caused by the tilting of the fragments impinging upon some nerve filaments running through the soft structures. Careful palpation of the painful spot thus pointed out by the patient will usually lead to the recognition of deformity. Pain alone as a symptom is delusive; it may be caused by injury to soft parts or by neuralgia.

In making our examination, we should commence posteriorly and follow the course of the ribs, making pressure with the fingers. If we get pain or a sense of yielding, we have a strong probability that a fracture exists there, especially if we discover some inequality. We make our diagnosis more sure by beginning again anteriorly near the sternum and pressing against the rib, and, if we have in the same place a sense of pain and yielding, we have positive proof that a rib has been broken. By the same method we proceed to examine all the ribs. The direction of the fracture of the rib is usually transverse or somewhat oblique. In young individuals, in whom the periosteum is thick, the bone may be broken; but the periosteum is sufficiently strong to pre-

vent displacement, whilst in old individuals, in whom the periosteum is thin, such displacement will be greater, and fractures are very common among elderly people, therefore we may be able to discover the displacement, not that which exists, but that which we may produce by pressure. Occasionally such a fracture is multiple, that is, the rib may be broken in two or more places; occasionally it is comminuted. If the fracture has been caused by direct violence, you can easily imagine how a fragile bone will yield, and thus you have a multiple fracture with the tendency of the fragments being towards the thorax. A longitudinal fracture of the rib is possible, but we are justified in classing them among the rare occurrences. Fractures of the ribs are generally simple, not complicated in any sense, and generally unite in three to four weeks. The patient has some pain because the periosteum has been injured and slight injury to the pleura exists. When the force has been great, we may have severe complications, and ought to treat them under the heading of injury to the viscera, since this is the more serious aspect of the case; such patients are brought to us with external evidences of injury to the thorax, suffering pain with every inspiration, hæmoptysis, pneumothorax, and emphysema; although these occurrences are not as frequent as one might suppose, because the force causing the fracture usually bends the rib outward, thus causing the rib to break away from instead of towards the thorax. Crepitus will not only occur, but we may hear a second gritting sound. Then in deciding a case of fracture of the ribs we should apply the stethoscope. There are other symptoms which we ought to take into account.

Patients having a fracture of the ribs will at once limit their respiration to the uninjured side of the chest, and the inspirations will be shallow and the respiration principally diaphragmatic and abdominal, because the muscles, which elevate and depress the ribs, the intercostal muscles, cause the fragments to rub together and produce pain, and instinctively the patient limits his breathing to avoid that pain. Ask the patient if he can sneeze, and he will say he cannot. He will prevent it, because it would produce pain. He cannot cough without great pain; and it is distressing to see how a patient, who has traumatic pneumonia caused by fracture of the ribs, suffers pain, and how he endeavors to suppress the cough.

If a fracture of the ribs does come to us for treatment, how shall

we proceed? Let us consider the treatment from a medical standpoint. We may allay the coughing by an opiate. In the beginning we should give small doses of morphine to suppress the desire to cough and to allay pain. If the fracture be a simple one, we immediately endeavor to rest the intercostal muscles by placing them in a splint, and giving nature a chance to proceed with her process of union. The readiest means will be found in taking a good, firm towel and bringing it all the way up to the axilla, pin it together as firmly as possible, compelling the diaphragm to act together with the abdominal muscles, as in youth, and not so much with the thorax. We thereby rest these muscles and fragments. It will hardly be necessary to apply a plaster of Paris bandage. A good dressing of adhesive plaster, encircling the whole chest, and especially the region of the fractured rib, should be applied. This will accomplish the result better than a towel, which is liable to roll up. But it is not necessary, where the fracture is unilateral, to encircle the whole chest. We make the application of adhesive plaster from the spine posteriorly to the sternum anteriorly, commencing below, and arranging the straps in such a manner that each covers half the preceding one. We shall apply it to the patient.

Should the fracture be a complicated one, such as the breaking out of a piece of the rib, or the pressing into the lung of one of the fragments, where it has torn through the pleura, it will be necessary for us to remove that piece; and we can lay aside all the means that have been devised for that purpose, cut directly into the intercostal space, introduce a finger and simply remove the fragment with the forceps. In all compound and comminuted fragments, as occur in gunshot injuries, it becomes imperative to remove the detached fragments at once. In cases of fracture in which the fragments are forced inwards, the application of a bandage or plaster to the chest will frequently give rise to intense pain and marked dyspnoea; in these cases the bandages must be dispensed with, allowing the patient to breathe freely, and he should be ordered to bed. When marked emphysema co-exists, the internal administrations of stimulants should be resorted to. Occasionally the intercostal artery is lacerated and hemorrhage occurs. We of course diagnosticate the presence of such a hemorrhage by the dulness, with absence of respiratory murmur, which we find on percussion and auscultation. If we find the lower portion of the thorax filled up, we have good reason

to conclude that a hemorrhage into the pleura has occurred, and it will be necessary, if the hemorrhage continues, to secure the bleeding vessel. We secure them by ordinary ligatures. I have seen the late Dr. Levis take a key, pass it through a small incision he had made, and press against the artery until the hemorrhage ceased; and I must say the result was a satisfactory one.

The man before you slipped on the ice, and in falling struck his side against the step. If you will notice, gentlemen, I have secured one rib posteriorly; and you see how I follow its course from above downward and how it turns about almost horizontally, and then takes an upward direction. I find an inequality here, but it is normal. If emphysema takes place, you have a marked bulging of the affected side, and tympanitic resonance on percussion. I pass my finger along this rib, which the doctor says is the point of fracture, and find thickening and yielding; this diagnosis is therefore correct. Please notice how the patient favors that side of the chest; in watching the inspirations you will find that much less expansion occurs on the left, and you will observe that the right side of the chest is much larger than the left. A month ago this other patient was injured by falling from a fence, which he struck with his left side. He became insensible from the pain. He was soon unable to cough or to sneeze.

Neither of these patients spat blood. This patient indicates a rather unusual place for a fracture due to compression. The fracture generally takes place at the convexity, or near the angle of the rib laterally, whilst here we have indication of the pain near the sternum. This man may have an injury to the soft parts about the sternum in addition to fracture of the ribs. Inspection only shows us some slight swelling of the parts, which is hardly significant at this late day, because the plasters we apply are apt to produce that. We cannot get any movement or crepitus as we had in the recent case. When I press posteriorly, I produce pain as well as when pressing anteriorly, therefore we would say that the fifth rib is broken, also the sixth. We will treat this patient in the same manner, and, in fact, the supports were only removed before he was brought in. The treatment is very similar in a medical and surgical way.

TREATMENT OF TUBERCULAR INFLAMMATION OF JOINTS AND OF BONE CAVITIES WHERE SEQUESTRA HAVE BEEN REMOVED.

By JOHN B. DEEVER, M.D.

THE treatment of tubercular inflammation of joints in the hope of bringing about a cure is not at all promising except by operative measures. The wards of this hospital annually contain large numbers of these cases, therefore the opportunity offered the visiting surgeons to determine whether better results can be obtained by palliative or radical means is ample. My observations with this class of cases, as well as with the repair of bone cavities where sequestra have been removed—which is more rapidly and effectually obtained by the implantation of decalcified bone chips in comparison with the old method of packing—both in the wards of the Philadelphia Hospital as well as elsewhere, have led me to make the above-titled paper the subject of my contribution to this volume of the report.

The operative measures are intra-articular injections, arthrotomy, arthrectomy, excision, and amputation. Antiseptics have rendered it possible to employ one of the greatest achievements in modern surgery,—intra-articular injection,—which, if it does not accomplish good, is harmless. The action of the remedies depends upon their antiseptic and stimulating properties introduced for the purpose of destroying the tubercle bacilli and of hastening repair. The earlier intra-articular injections were introduced with a Pravaz syringe without removal of the fluid contents of the joint. The instrument best adapted for the removal of the fluid contents of the joint is a small trocar and canula, which, when accomplished, permits of irrigation of the joint with a mild antiseptic solution prior to the introduction through the canula of the chemical anti-microbial substance to be employed. In flushing a joint, the simplest means is by attaching a piece of rubber tub-

ing to the canula, then with a syringe, preferably a glass one, sufficient of the antiseptic solution is thrown in to distend the joint, when it is allowed to escape; this is repeated until the fluid returns clear. The anti-microbic solution selected for the particular case is now introduced through the canula, the canula removed, and the puncture closed antiseptically. These injections are repeated at intervals of about ten days until cure is accomplished. Within a few hours after the injection is made, especially the first two or three, the temperature rises two or more degrees; this gradually subsides, leaving the patient as comfortable as before the treatment was instituted. Locally, the joint but seldom shows evidence of increased irritation. In the event of swelling and tenderness, they, like the temperature, subside spontaneously in a few days. Marked improvement does not take place under one month at least. The treatment, to be successful, must be continuously employed till cure is established. Cure does not necessarily mean restoration of the normal functions of the joint in all cases; in some this takes place, while in others partial or complete ankylosis is the result.

While my experience is limited to the use of a sterilized ten-per-cent. solution of iodoform in glycerine, other substances have been employed, as the balsam of Peru, tincture of iodine, the chloride of zinc, etc. The *rationale* of the effect of the latter agents is to stimulate the diseased tissues to take on healthy action by which they are rendered able to resist the specific action of the tubercle bacilli. The advisability of maintaining absolute rest of the joint by means of a fixed dressing while the treatment is carried out, is only necessary in the limited number of cases where, as the result of the joint trouble, clonic muscular contractions are excited. In the majority of instances moderate movement is compatible with the treatment.

In the class of cases in which there is, in addition to disease of the joint, a marked deformity, its attempted correction should be deferred until the process of the disease has been arrested, providing the attempt aggravates the local trouble. Arthrotomy may be required in those cases in which the injection fails to prevent a re-accumulation of the fluid. Further, this operation may be limited to opening the joint and inspecting it, when, if the lining membrane is found to be simply congested, constituting what may be called the pre-tubercular stage, washing it out, introducing tubu-

lar drainage, and closing the wound. The drainage-tube serves a twofold purpose,—preventing a reaccumulation of the fluid and offering an avenue for the introduction of the sterilized solution.

In a case of chronic inflammation of tubercular origin of the bursa beneath the quadriceps extensor in communication with the knee-joint under my care a year ago, I treated successfully in this manner.

If upon opening the joint granulations are found on the synovial membrane, they should be removed by the curette, and the joint treated by tubular drainage or packing it with iodoformized gauze.

Arthrectomy is indicated where the tubercular inflammation involves the articular cartilages and the articular lamella of the bones. If the destructive process has resulted in one or more superficial bone cavities communicating with the joint, they may be scraped. When extensive infiltration of the bone is present, excision offers the more promising result.

Where the joint is disorganized and sinuses with infiltration of the surrounding soft parts are present, amputation had better be done. In all of the above operations I do not use the Esmarch bandage and tube on account of the consecutive bleeding which follows its use. In amputations, the Petit tourniquet is all that is required.

In the case of bone cavities, with or without a sequestrum, the implantation of decalcified bone chips is the most rapid way of obtaining healing, and is more likely to result in permanent cure.

This operation, however, is only applicable in chronic cases.

To date, I have practised it in seven cases, five of which resulted in permanent cure, one partial, one a failure.

For a successful bone implantation, thorough antiseptic preparation of the field of operation, of the sinuses leading to and of the cavity, is essential. The instruments used in the operation, as well as the chips, must be sterile. The periosteum should be preserved, if possible, to cover the cavity when implanted. The sequestrum and detritus having been removed, the cavity is to be thoroughly curetted, making its base wider than its opening. The sinuses are to be thoroughly curetted, irrigated, the cicatricial tissue surrounding their orifices dissected out, and closed by sutures. The cavity is to be flushed and wiped thoroughly dry, when successive layers of chips and iodoform are introduced, and the

periosteum and overlying tissues sutured. It is essential in this operation that the limb be rendered bloodless.

CASE I.—A. B., Pole, aged thirty-five, was admitted to hospital with a swollen elbow of some standing, believed to be a chronic synovitis of tubercular origin. Not being able to speak English, and in the absence of an interpreter, we were not able to elicit any history other than the fact that the trouble was not recent. Two injections of the sterilized iodoform solution resulted in so marked improvement that the patient believed himself well enough to go to work and left the hospital.

CASE II.—M. P., aged seventeen, white, female. Hurt left ankle six years before admission to the hospital, April, 1892. Examination of affected joint showed the presence of a swelling over and immediately below the external malleolus, the surface of which was glazed and slightly cedematous. The foot in position of semi-flexion. Swelling opened, when contents were found to be purulent. Ankle-joint drained and injected with iodoform and glycerine, while the point corresponding to seat of swelling was packed with iodoformized gauze. Cure.

CASE III.—J. V., Pole, aged twenty-three. First noticed swelling of right ankle-joint in December, 1891. He entered the hospital shortly afterward, when upon examination the following note was made: "Right ankle, the seat of a swelling extending from a point one inch above malleoli to base of metatarsal bones. Palpation of swelling showed œdema and indistinct sense of fluctuation. Slight pain complained of. Movement of joint other than exciting pain revealed simply restricted motion. General appearance of patient that of a tubercular subject. Although there was a slight cough, nothing of a definite nature could be determined by examination of chest."

Counter-irritation with iodine, the application of belladonna, and mercurial ointment, a fixed dressing, and constitutional treatment was given a trial, but to no effect. Intra-articular injections of a ten-per-cent. solution of iodoform in glycerine were made. The local trouble advanced as shown by increased pain and swelling, with distinct lateral movement, the presence of crepitus and clonic contractions of the muscles. With the consent of the patient I amputated the leg at the point of election. Healing occurred by first intention.

Of the three foregoing cases it will be seen that but one presented any systemic involvement.

PRIMARY BONE IMPLANTATION WITH DECALCIFIED BONE CHIPS.

CASE I.—A. E., white, aged twenty-one, was admitted to the wards of the hospital with necrosis of left tibia and of right ulna following typhoid fever. The sequestrum in the tibia could be felt with the probe to be freely movable. Not so in the case of the ulna.

The leg prepared for operation was rendered bloodless, and the sequestrum, which measured four inches in length, was removed after chiselling away a considerable amount of involucrum. The cavity was thoroughly curetted, flushed, and dried and filled with successive layers of bone chips and iodoform. The deep tissues were united with a continuous catgut suture, the superficial with interrupted silkworm-gut, and wound dressed. Limb placed in a fracture-box. Wound dressed in ten days; when found healed, the sutures were removed. Discharged cured.

Admitted three weeks later, when ulna was operated upon in like manner with equally favorable result.

66 TUBERCULAR INFLAMMATION OF JOINTS AND BONE CAVITIES.

CASE II.—R. M., aged seventeen, white, female. Extensive necrosis of left humerus, with six sinuses, measuring six and three-quarter inches in length, leading to cavity, containing a sequestrum of corresponding length.

Recovery uninterrupted.

The important points in bone implantation are thorough antisepsis and a bloodless operation. It is also interesting to note that the cicatrix following repair in these operations is freely movable and not depressed.

SECONDARY BONE IMPLANTATION WITH DECALCIFIED CHIPS.

CASE III.—A. H., white, aged seventeen, was admitted into the wards for necrosis of lower third of right femur. Family history negative. Patient was entirely well until two years ago, when, occupied as a domestic and while scrubbing the floor in the kneeling position, she felt pain, which was referred to the right knee. The following day the joint became swollen and red, the result of which patient was confined to bed for several months. An abscess ultimately formed over the outer side of the lower portion of the thigh; this was incised and evacuated, leaving a sinus, which was present at the time of her admission.

Examination with the probe showed the presence of dead bone. The operation of sequestrotomy was performed, and the cavity treated after the old method. The cavity being very slow in healing, some weeks after this operation I bone-implanted it with success.

REPORT ON THE CURE OF CHRONIC INFLAMMATION OF SEROUS MEMBRANES.

By ERNEST LAPLACE, M.D.

THE anatomy of the various serous membranes being identical, it follows that the principle underlying the cure of affections in any locality lined by serous membranes must be constant, whether pleura, pericardium, peritoneum, or tunica vaginalis. Any inflammation violent enough to have given rise to suppuration can find a curative termination only by the obliteration of the serous sac. To obtain this result, two great principles must be constantly kept in mind: 1st, drainage; 2d, an aseptic condition, whereby the efforts of nature in the formation of granulation tissue will be of avail, and the least possible number of fibroblasts be destroyed and transformed into pus.

The type of such a condition would be a case of pleurisy with effusion, wherein, after the absorption of the fluid, the pathological condition subsides, by the union of the costal with the pulmonary pleura. In tubercular peritonitis, a disappearance of the affection results with an obliteration of the pus-holding cavity. In the hydrocele, we find that the so-called radical cure is to be attained only by such measures as result in a chronic inflammation whereby the cavity of the serous sac is obliterated.

The two conditions above mentioned being obtained, a sound hygienic treatment remains the only supplement to effect a cure.

Without going into a historical account of the treatment of affections of serous sacs, for this would necessarily be lengthy and varying according to the great steps through which medicine has progressed, we will briefly describe the changes which actually take place in a serous membrane, study the fluid incident to the disease, the removal of the fluid, and the subsequent changes in the serous walls, the building of fibrous tissue or so-called adhesions, the cure.

A fibrous layer lined by epithelium is the essential portion of a serous membrane; below it, blood-vessels ramifying in a horizontal direction supply nutrition to the membrane. Granted an irritation such as would naturally follow from the action of cold, a congestion soon results, whereby the serous portion of the blood exudes from the surface of the membrane. This is a highly nutritive culture medium, and requires the access of but few micro-organisms to develop enormous colonies, the ptomaines of which act as an irritant, which increases the original condition, producing more secretion, more culture fluid, more bacteria, until, so great is the amount of ptomaines generated, that death of white blood-corpuscles follows, and the formation of pus is the result.

Such is the course of an acute infection of a serous sac. The surface epithelium is destroyed during the process of suppuration. In subacute or chronic cases, existing conditions necessarily demand a slower process, depending on the rapidity of development or growth of the particular infecting micro-organism. The stage of congestion is therefore prolonged; the irritation being mild and constant, but at no time violent enough to destroy the migrating white blood-corpuscles. In these cases, therefore, the affection is limited to an exudation, such as is found in simple hydroceles where the condition is of a true chronic character. These conditions, such as above described, are general; that is, although different cases might apparently answer such a description, still, many and varied may be the causes that have started the processes and may still be active. The various streptococci of suppuration are present in the majority of cases, and are the primary infectious agents; in other words, a condition resembling an abscess, but developing superficially, exists upon the serous membrane.

Often, however, the tubercle bacillus gradually invades an already irritated surface of serous membrane, and, developing, becomes the cause of a mass of pus which collects there. This pus may apparently, that is microscopically, be free from germs. But should a cubic centimetre of this pus be injected into the peritoneal cavity of a guinea-pig, it is likely to develop unmistakable signs of tuberculosis in about three weeks. This method is sometimes the only means at our command to determine the true nature of the pathological condition we have to deal with.

Whatever be the initial pathological cause, it remains true that

the therapeutic aim must be the obliteration of the sac. In fact, we must observe, that this is nature's cure, witness the many adhesions found at post-mortem examinations, that testify to the former existence of an inflammation that has subsided, that has drained itself away by absorption of the effusion which must necessarily have existed. Whatever may have been the initial cause therefore, it remains true that we must aim at imitating nature in effecting a cure. Whenever possible in nature's process the effused fluid is absorbed, and the raw serous surfaces, coming in contact, adhere because of the granulations that now cover them, the result is the obliteration of the inflamed area.

Surgery should assist by: 1st, Draining thoroughly, equivalent to nature's process of absorption; 2d, Remove the original cause, disinfection; 3d, Facilitate the approach of the inflamed surfaces so as to hasten their adhesion by the formation of fibrous tissue.

Illustrating these principles, which I purposely place as concisely as possible, and do not complicate by any collateral theories, so that it may guide us in the treatment of chronic inflammations of serous membranes, I shall describe the following cases, most of which have been treated in the wards of the Philadelphia Hospital during my terms of service of the past three years,—nine cases of empyema, six cases of tubercular peritonitis, and twenty-one cases of hydrocele. Without going into a minute history of each case, I shall mention simply points of importance.

EMPYEMA.

CASE I.—Laborer, aged thirty-five; no family history. Has had pneumonia two years ago; has suffered violent pains in right side for three weeks. Morning temperature 100°, evening temperature 102°. Dulness, and diminished vocal fremitus. The diagnosis of pyothorax being made, a resection of the sixth rib practised, one inch being removed in the axillary line. Eighteen ounces of pus were withdrawn. The cavity was carefully washed with one gallon of sterilized hot water at 105° temperature, until the water came out clear. A long and thick line of iodoform gauze was introduced into the cavity, with one end protruding out of the wound, and serving the double purpose of antisepsis and drain. During three weeks a continued oozing of serum took place, purulent at first, but less so subsequently; the secretions gradually diminished. This gauze drain was changed every three or four days. On the second day after the operation the evening temperature was 100°, morning temperature 99°; at no time during convalescence was the temperature higher than 100°. Patient left the hospital cured three months after the operation. A specimen of pus got at the operation being injected into guinea-pigs, produced a septicæmia which was fatal in four days. Evidently there were present in this case germs of acute infection, and of these none but the streptococcus

pyogenes aureus albus and citreus could be found in the blood of the guinea-pig, together with a few colonies of tetragonus. This latter organism we know is harmless to man, but deadly to guinea-pigs.

CASE II.—A clerk, male, poorly nourished, aged twenty-one, of tuberculous antecedents, suddenly an area of dulness in right side, diminished vocal fremitus. Considerable pain; morning temperature 99° , evening temperature 102° . An inch of the sixth rib was removed in the axillary line, and about one pint of thick and creamy pus flowed out. Careful irrigation with sterilized warm water, and packing with a long strip of iodoform gauze; during three weeks the packing was renewed twice a week. The drainage, which was at first profuse and purulent, had gradually lessened, and now had more of a serous character. At no time did the patient complain of pain from the gauze. When he left the hospital, eight weeks after admission, he still retained a slight fistula, from which a little oozing took place. The patient had gained ten pounds from the date of the operation. A small amount of pus from the pleura injected into a guinea-pig produced death by acute infection.

CASE III.—Sailor, aged thirty-six; presented symptoms of accumulation of fluid in the left pleura; temperature 101° in the morning, 104° in the evening; respiration, 30; pulse, 110; apex beat of heart felt a little to the left of the ensiform cartilage. A resection of one inch of the sixth rib was performed in the axillary line and careful flushing of the pleura practised with sterilized hot water; thorough packing with iodoform gauze as far as could be reached with a long silver probe. Drainage took place easily, a considerable amount being drained from the thorax daily. Progress was constant, and at the end of one month after the operation there ceased to be any discharge from the wound. The patient left the hospital cured.

CASE IV.—A woman, aged forty; alcoholic and specific antecedents; has had pneumonia one year ago; presents dulness over the base of right lung, together with diminished vocal fremitus; respiration, 30; pulse, 100; temperature, 103° ; no evidence of any active syphilitic manifestations. Four days after admission, the sixth rib was resected in the axillary line, and the wound was packed with iodoform gauze. No pain was experienced, but, on the contrary, she felt, as she expressed it, "a sense of support on that side." The purulent oozing was abundant. Dressings were renewed twice a week. This patient's case was complicated by violent attacks of diarrhoea, which seemed to retard the progress of the case; however, at the end of nine weeks the wound had closed, and she left the hospital apparently cured.

CASE V.—Boy, aged fourteen; very much emaciated, of tuberculous parentage; has a hectic flush, coughs incessantly. No appetite; right side bulges somewhat. A resection of the sixth rib in the axillary line was practised, and about eight ounces of thin yellowish fluid were withdrawn, in which no micro-organisms could be detected with the microscope. Some of it was injected into the peritoneal cavity of a guinea-pig, and the animal developed tuberculosis of the lymphatic glands of the abdominal cavity, as well as tubercular deposits in the liver and lungs, leaving but little doubt that in this case the pyothorax was really due to tuberculosis of the serous membrane. The same system of packing was resorted to, but without the usual beneficial effect. The secretion of pus seemed to continue unabated for one month. When the boy left the hospital, two months after admission, a large sinus still existed, and further trace of the case was lost.

CASE VI.—A man, aged sixty; very emaciated; dulness over both lungs. Diagnosis of tuberculosis of the left lung; tubercular deposits at apex of the right lung, and a pleural effusion on same side. Owing to great dyspnoea, which called for immediate relief, a resection of the sixth rib was practised in spite of his desperate

condition. The patient stood the operation without marked shock. Packing was practised, but no improvement followed, and death resulted within four days after the operation. The autopsy revealed large tubercular deposits in both lungs, together with a thickened pleura lined with tuberculous membranes.

CASE VII.—Female child, aged eight; bright but delicate; respiration, 30; temperature, 102°; has considerable pain in left side. A pleural effusion having been diagnosed, thoracocentesis was practised. The fluid proved to be yellowish-green and somewhat purulent; twelve ounces were removed, and in a week the accumulation had returned to almost the same amount. Resection of the sixth rib was then performed and the cavity packed, about a pint of fluid of the same nature being removed. The child was given syrup hypophosphites. Not quite cured when discharged. Was seen a year later apparently well. Auscultation revealed a marked diminution of respiration over the once affected area, giving evidence of an adhesion of the lung on that side.

CASE VIII.—Male, aged forty-five; much emaciated, and giving history of chronic articular rheumatism; temperature, 102½°; pulse, 100; respiration, 30; dulness over right side and diminished vocal fremitus. The patient at first refused an operation, and after a week's aggravation of the case consented. Two pints of purulent fluid were removed, of an offensive character, no doubt having been secondarily infected by some saprogenic germ. Iodoform gauze drain and packing. Discharged cured one month after the operation.

TUBERCULAR PERITONITIS.

CASE I.—Laborer, aged twenty-five; had continued hectic flush. Slight deposits at apex of both lungs; tubercular antecedents; a marked fluctuation is to be detected in his distended abdomen. This abdominal condition had existed about one month. An incision was made in the median line about two inches in length, midway between the umbilicus and arch of the pubis, and fully two quarts of pus were removed; the abdomen was flushed with a large amount of water and the cavity drained with iodoform gauze. After the operation the patient's temperature was never above 99½°; general condition improved rapidly. One month after the operation the patient left the hospital cured.

CASE II.—Woman, aged forty. No previous history. Husband died of tuberculosis one year ago; has been suffering with obscure pains in the abdomen; night sweats. Fluctuation barely detected. An incision two inches in length being made into the abdominal cavity in the median line, gave issue to two pints of pus. The cavity was carefully flushed with hot water and a large iodoform drain introduced. Improvement immediately followed, resulting in a complete cure at the end of three weeks.

CASE III.—A woman, aged twenty-five; married; had a child six months ago. Three months ago began to suffer in right iliac region; obscure pains, which gradually spread over the rest of the abdominal cavity; abdomen began to distend; no interruption in menstruation; fluctuation slight; temperature, 102½°. An incision being made in the linea alba, about one pint of pus was removed from the peritoneal cavity; this was then carefully washed with hot sterilized water, and an iodoform gauze drain applied. Copious saline cathartics were given. An uninterrupted recovery took place, and patient was discharged cured at the end of two weeks.

CASE IV.—A laborer, aged thirty; father and mother died of tuberculosis; has been well, though not strong, until six months ago, when patient says he caught cold

about the abdomen and gradual distention took place; at present has night sweats and occasionally chills; pain quite marked on pressure over the region of the abdomen; no tympanites. An incision in the median line liberated about one gallon of pus, thin and yellowish. A large amount of organized fibrin was also evacuated. The omentum seemed bound to the intestines. The patient was considerably exhausted by the operation, and died on the fourth day after the operation, without having fully recovered from the shock. It was unmistakably, as the autopsy revealed, a case of disseminated tuberculosis, to which the operation seemed to give additional shock. The lungs were quite infiltrated with tubercles.

CASE V.—Boy, aged six. Great distention of the abdomen. There is dulness on percussion and a slight amount of fluctuation. An incision was made in the median line, and about eight ounces of pus were removed, which seemed to relieve the condition, for a gradual recovery took place. The gauze drain was removed on the tenth day after the operation. The child was still well six months after the operation.

CASE VI.—Laborer, aged fifty-two; has not been well for several years; very much emaciated; abdomen tympanitic in places, but dull on the anterior surface; hectic, night sweats, loss of appetite; dulness at apex of right lung. An incision being practised in the median line, about two ounces of pus were removed; the cavity was flushed, and an iodoform gauze drain applied. The patient left the hospital in about one month without complications.

HYDROCELE.

It would be tedious to relate the details of twenty-one cases that we have collected during the last three years. Suffice it to say that in no case was the hydrocele attributed to any other but ordinary causes. These occurred in patients ranging from fifteen years of age to eighty-five years, from the size of a walnut to that of a child's head. In every case, knowing the absolute necessity of a radical cure, the radical treatment was applied,—viz., in eight cases the puncture and subsequent injection of irritating fluids, such as compound tincture of iodine one drachm, carbolic acid ten drops, or a few drops of a saturated solution of chloride of zinc.

In all these cases pain was great, owing to the intense irritation and subsequent swelling, and a cure ultimately followed; but it must be admitted that the treatment was violent and almost unbearable. In the treatment of our subsequent cases, however, we departed from this custom, and applied the treatment corresponding to that we had found successful in the pleura and peritoneum, that is, free evacuation by means of an incision, and subsequent packing of the serous sac by means of iodoform gauze, whereby drainage, disinfection, and a certain amount of irritation might be kept up. The gauze was irritating enough to promote the condition of granulation necessary to the serous membrane to

insure its adhesion, and at the same time offered the best opportunity for drainage. As a result of this mode of treatment, swelling was obviated, and at no time was there any pain; there was an absence of the violent reactionary inflammation which is the result of the injection of violent irritating substances. In every case thus treated, whether the hydrocele was recent or chronic, the result was uniform,—gradual obliteration of the sac, until the wound itself healed and closed without having caused the least pain at any time. The packing was removed twice a week, and in five cases a complete cure had taken place within two weeks; in the remainder within three weeks; a method presenting such advantages as cannot be obtained with any other method; for we know that even the irritating substances, violent and painful though they be, are not always followed by a cure. Should we therefore be asked the principles which underlie the cure of affections of serous sac we would say, those three which form the tripod of modern surgery: 1st, Drainage; 2d, antisepsis; 3d, the application of our knowledge of tissue building.

SPINAL ANÆMIA DUE TO SYPHILIS.

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As our knowledge of this affection is to a great extent of recent date, beginning, it is believed, with the monographs of Gros and Lancereaux, Layneau and Zambaco, who, during the years 1860-61, first called the attention of the profession to syphilis of the nervous system, it is presumed that it will not be uninteresting to present to the reader such observations as I have been enabled to make and the deductions that I have drawn while having under my care six cases of the disease.

It is to be regretted that I can offer but little that is new respecting the pathology of this affection, for the reason that I was unable to obtain post-mortem examinations of those who died, save in one case; yet I trust that a study of these cases will demonstrate that much can be done beside following the usual specific treatment, which I believe in some stages of the disease to be harmful, and to be avoided.

During the past nine years I have had under observation but six cases of spinal anæmia occasioned by syphilis, and, as I have had an unusual opportunity for seeing large numbers of patients afflicted with all forms of venereal disease, it is natural to infer that it is not a common sequel to this disorder.

Of the six patients under observation four were women. That spinal anæmia more frequently occurs in females than in males is well known, but why this law should apply to syphilitic subjects is not readily understood. The cause of the anæmic condition appears to be certain changes which take place in the coats of the artery supplying the cord. The question naturally arises whether these vessels are more predisposed to the changes referred to in the female than the male. From the limited number of cases that came under observation, it would not be wise to infer that the disease really occurs more frequently in one sex than the other.

Syphilitic diseases of the nervous system are more apt to be developed in individuals of either an hereditary or acquired neuropathic constitution.

The patients were all addicted to the abuse of alcoholic stimuli; they all indulged in excessive sexual intercourse; all suffered more or less mental strain, and led very irregular lives; one was an opium eater. It is not astonishing, then, that a nervous type of syphilis was developed in these cases.

The pathological condition can only be one of surmise, which is in a measure due to the fact that the symptoms are excessively slow in developing themselves, and that the disease is exceedingly chronic in its progress.

The patient will sometimes lie for years in a semi-paralyzed state, when the original cause of disease will be well-nigh lost sight of; the poor creature possibly dying of some intercurrent affection. During the long period that the sufferer has been under treatment he has necessarily been from time to time under the care of numerous physicians, the history of the case is lost, and there will be no one especially interested in it, when at last death ensues.

When a post-mortem examination is finally made, the spinal cord will most probably be overlooked, neglected, and not subjected to examination; that its careful investigation is attended with more difficulties than any other portions of the body will probably explain why its examination in the dead-room receives so little attention by the investigator.

Inflammation of the coats of arteries frequently follows as a result of syphilis; no part of the arterial system being exempt, and, of course, the most serious consequences must follow the involvement of the vessels of the brain and spinal cord.

The greatest danger to life is when the minute ramifications of the small vessels supplying the nervous system become involved; the canals of these arteries becoming almost, and in some cases, completely occluded, thus cutting off the vital supply to the very centres of life.

As the calibres of the vessels dwindle and the blood-supply becomes inadequate for the nourishment of the nervous substance, it, as a result, undergoes softening, which, when examining after death, is often erroneously ascribed to a syphilitic inflammatory condition of the cord or its membranes; whereas the changes in the

cord are really due to anæmia, produced by the alterations that have taken place in the vessels of the pia mater, the real cause of mischief being overlooked.

A detail of the case about to be cursorily presented will serve as an illustration :

CASE I.—J. R., aged forty; retired merchant; married; gives the following history: Had a severe outbreak of syphilis when twenty-two years of age, for which he was under treatment for the space of ten months, when he was pronounced by his attending physician entirely cured. During the next few years, however, he had several attacks of tertiary syphilis, for which he underwent treatment by different physicians. He had been free from any manifestations of disease for two years previous to my first seeing him, when he began to suffer from pains in the back, legs, and arms, of a dull aching character, which were worse at night. Coincidentally with the pains were progressive emaciation, loss of strength, and, finally, complete paralysis of the lower extremities. This was his condition one week before his death when first seen by me. He died from marasmus.

Autopsy twelve hours after death: Rigor mortis marked; great emaciation; large bed sore on lower portion of back. Contents of cranial, thoracic, and abdominal cavities normal.

The Cord.—The lower dorsal and upper portion of the cord were very soft and flattened. The gray matter was of a dark color. The pia mater removed from about the diseased portion of the cord appeared normal, but on subjecting it to a microscopical examination the vessels were seen to be enormously thickened, degenerated, and in parts completely occluded; others gave evidence of fatty degeneration.

The portion of the pia mater just above the softened portion of the cord showed evidence of inflammatory changes having taken place, such as occurs in the earlier stages of the affection, and tallied exactly with the description given by Heubner of the changes that ensue in the cerebral arteries under the influence of syphilitic poisoning.

This case clearly proves that the alterations that occur in the pia mater cannot be observed without the aid of the microscope; for to the unaided eye the membranes looked entirely normal. Had a study of the membranes not been made, the changes would have been ascribed to a specific inflammation of the cord or its coverings.

How far changes in the vessels which supply the cord are the primary causes of many cases of spinal syphilis, it is impossible to determine without more extended observation. I think, however, that it is much more frequently the starting-point of specific spinal trouble than has hitherto been suspected.

The microscopical study of the diseased pia mater may be divided into that portion of the membrane which lies immediately above

or below the softened mass and that portion which surrounds the diseased cord.

The difference between the two portions of the membrane was very marked: that removed from the healthy part of the cord showed the changes which occur in the acute stage of inflammation, whereas the other portion was in the condition usually associated with a part chronically inflamed.

The pathological alterations may be divided into the stage of congestion, that of acute inflammation, and, if the process continues, into that of chronic inflammation.

The process is essentially very slow, continuing over a period of months, even years, before the calibre of the vessels become so occluded that the nourishment to the cord is sufficiently interfered with to produce softening. In the specimen which showed the disease in its earlier form, it was found that the structure consisted almost entirely of a new cell-growth which had not undergone organization to connective tissue.

In the second specimen the embryonic tissue had become organized into fibrous connective tissue, and not only had the walls of the vessels become enormously hypertrophied, but the contraction of the new-formed connective tissue had in most cases almost, and in some cases completely, occluded the tube of the arteries.

The principal changes were found in the intima, whilst the external coat was nodular and thickened; the elastic coat was very slightly altered from its normal condition. It was somewhat wrinkled, probably due to the contracting of the newly-formed connective tissue.

It is probable that at first very few vessels are involved, hence the slow development of the symptoms; the inflammation, too, is not of an active type even in the first stages. The changes in the structure of the arteries involved take place very slowly, hence a long time is consumed before any secondary modification takes place in the cord. It furthermore shows that if a perfect cure is to be effected it must be effected during the first stage, for, after the arteries have become blocked and the vascular supply to the cord permanently interfered with, the patient either becomes a hopeless paralytic or, what frequently happens, dies from exhaustion, if not from some intercurrent disease.

I am inclined to agree with Wyeth, that the cause of the syphilitic arteritis is the inflammatory poison travelling in the line of

the blood-current through the *vaso vasorum*, although the direct irritation of the passage of the poisoned blood upon the endothelium, which Heubner believes to be the cause of the changes which take place in the vessels, may also act as a factor in lighting up the low grade of inflammation.

Of the six cases that came under observation four belonged to the lowest walks of life; they were addicted to the excessive use of alcoholic liquors and to all manner of excesses.

The disease does not appear to be developed until late in the tertiary stage of syphilis. The following gives the period of development in each case after the initial lesion: Three and a half years, four years, five years, seven years, eight years, and sixteen years.

The earliest symptom is a loss of desire for any mental effort, and should the patient attempt to use his brain it usually results in a confusion of ideas, and he experiences a feeling of mental and physical exhaustion. He is tormented with insomnia, though at times the sleep is deep, heavy, and prolonged, from which condition he will wake up unrefreshed and unable to make use of any mental or physical effort, as one of the victims expressed it, as "though he were a dead man."

The slightest emotional excitement, such as anger or apprehension, produces trembling of the limbs, especially of the hands, which shake as though the patient were suffering from paralysis agitans; when the excitement wears off the hands continue to be unsteady.

Very soon an irritating twitching of certain muscles of the body is observed, especially those of the thighs, back, legs, and arms, beginning in the order named. The *tensor vaginæ femoris*, the *quadriceps extensor femoris*, and the muscles of the back were usually the first to become affected. This condition ordinarily pertained when the patient was in the recumbent position; it was especially the case at night. It was absent or unobserved when the individual was sitting up, and when the mind was more or less diverted from his ailments; the twitchings appeared to be increased when lying on the back, and were modified or absent when resting on the side.

Excesses of any kind, whether over-indulgence in the use of tobacco, alcohol, or sexual intercourse, increased the nervous twitchings and filled the mind of the patient with alarm.

The general feeling of discomfort is very distressing; it is usually accompanied by a sensation of fatigue in the lumbar region; at first this is noticed after unusual exertion or fatigue, but it soon becomes constant, and is readily brought about by violent and jolting exercise, such as riding over rough roads and the like.

This feeling of discomfort is greatly relieved by flexing the legs upon the thighs and by placing a pillow under the back; a great comfort was experienced by resting on the side and drawing the knees up towards the abdomen.

Soon the patient begins to lose flesh, is weak, dispirited, irritable, and hysterical; limbs subject to alternations of feelings of heat and cold; face frequently becoming flushed without any apparent cause.

One patient exhibited a curious perversion of sensation, from being naturally very sensitive to cold he passed to the other extreme, and suffered greatly from a feeling of oppressive heat, so that, having had all his life to clothe himself in the heaviest underwear, he found that even the lightest gauze shirt in midwinter was oppressive.

The evolution of these symptoms seemed to occupy a period varying from six months to a year, and probably corresponded with the early changes that were taking place in the coats of the arteries of the pia mater, and is possibly due more to some disturbance in the circulatory apparatus than to a diminution in the calibre of the vessels supplying the cord.

The similarity of the symptoms of this stage of the disease to those observed in nervous prostration or spinal neurasthenia is readily noticed.

CASE II. is typical as illustrating the symptoms of this disease. This person had been an inmate of the venereal ward of the Philadelphia Hospital on four previous occasions; had contracted syphilis eight years previous to her last admission. The tertiary symptoms were well developed a year and a half after the appearance of the initial lesion. She had been under treatment at irregular intervals; when the outbreak was slight she was prescribed for at a dispensary; when more severe she resorted to a hospital. In the intervals she led a fast life and drank to excess.

She stated that two years previous to her last admission, she noticed that she was losing strength, that she was easily fatigued, that she was beginning to suffer from hebétude, that she took little or no interest in any thing, that she felt a continual desire to sleep, and that she awakened unrefreshed, with a dull headache, usually located in the back part of her head. She began to experience what she described as a "weak back." She had a constant sense of fatigue, which, very slight at first, increased on exertion, until finally it was constantly present and

assumed the form of a dull aching pain, which increased to such an extent that she could with difficulty retain the erect posture longer than half an hour at one time. The pain increased when she reclined on her back, and to obtain relief it was necessary to lie on her side with her knees drawn up. She had lost flesh and strength, was pale, and suffered frequently from palpitation of the heart, produced by any trifling exertion or any slight disturbing cause. She suffered from constipation; her menstruation was scanty and frequently absent. Twitching of the muscles of the thigh and back began to annoy her, her hands became tremulous, and any agitation would so increase the shaking that she could with difficulty retain her hold on anything. She would frequently break out in profuse perspiration.

She had been under the care of numerous physicians, whose diagnoses widely differed; one giving it as his opinion that she was suffering from nervous prostration, others that her troubles were due to uterine disturbance, and others, again, that she was suffering from marasmus.

Deriving no benefit from the treatment to which she had been subjected, she applied for admission into the Philadelphia Hospital, and was received in the venereal ward, where she remained six months, when she was discharged at her own request, having gained thirty pounds in weight, her general health greatly improved. She returned to her life of dissipation.

The advance from the first to the second stage is so gradual that it is only by carefully comparing the condition of the patient from time to time that the observer comes to the conclusion that he is slowly and surely becoming worse. He now keeps his bed; or, if he sits up for an hour or so during the day, he is very much exhausted and gladly returns to the recumbent position.

He is pale, anæmic, and wasted; has little or no appetite, and the food that he takes does not seem to nourish him. The pain that has hitherto been present only at night begins now to be felt during the day, until finally it is seldom or never absent; the administration of an anodyne becomes necessary to give repose.

There are periods of increased pain, though their accessions do not appear to be due to atmospheric changes; instead of being confined to the back and limbs, it is now felt along the subcutaneous surfaces of the more exposed bones, as the radius, sternum, tibia, etc. There is no thickening of the periosteum, tenderness on touch, nor does there appear on examination to be any symptoms of inflammation.

The pain is described as dull and aching; there is often great difficulty in locating it; it does not follow the course of the large nerves. It seems to resemble the "bone pains" of early syphilis, but is much more severe. The joints retain their normal condition, the muscles respond naturally to electrical stimulation.

• Temperature is normal; heart irritable; pulse increased in fre-

quency, generally being about one hundred per minute. The urine is usually normal, though at times it is loaded with phosphates; a condition often found to exist in cases of spinal anæmia associated with atonic impotence.

The wasting, due somewhat to insomnia and loss of appetite, increases, until in the last stage the patient is reduced to a skeleton, when death closes the scene.

CASE III.—The third case that came under my observation at the Philadelphia Hospital presented all the symptoms of the second stage of the disease, which have already been given.

She was a woman of about thirty years of age, very anæmic, and wasted to the last degree, weighing not over ninety pounds. She had several unhealed rupial ulcers upon her legs and back, and a spot on her frontal bone of superficial necrosis. She stated that her health had begun to fail about a year and a half previous to her admission to the hospital. She had lost her strength, had twitching of the muscles of the thighs, pain in the back, frequently so intense that she could with difficulty retain the erect posture, was hysterical and irritable. Her sense of fatigue was continuous even after awakening from a sound sleep. The pain in the bones of her legs, arms, and ribs was constant, and, as she expressed it, "horrible." She suffered greatly from insomnia, which could only be relieved by giving her morphia in half-grain doses.

The temperature was normal; skin dry and cold; heat normal; pulse increased in frequency. No appetite; tendency to constipation; was hysterical and irritable. Kept her bed, not having strength to sit up; eye-ground normal, urine loaded with phosphates. She was removed from the hospital by her friends, when the further history of case was lost.

Judging from the clinical history obtained from Case I., paralysis gradually supervenes. In the case referred to paralysis of sensation preceded loss of motion. The paralysis of the lower limbs was complete. Control over the sphincter was lost for some two months before the patient died, proceeding apparently from exhaustion.

At the outset the diagnosis must be made between this disease, incipient ataxia, and incipient myelitis; and later on from paraplegia, due to lesion of the cord and its membranes.

In ataxia, lancinating pains, girdle pains, early disorders of vision, paresis of the ocular muscles, and exaggeration of galvanic excitability, are prominent symptoms.

In incipient myelitis, the sudden appearances of vague neuralgia, paresis, and paralysis of the lower limbs, obliteration of sensibility in some regions, stiffness of the joints, and difficulty of movement of the body generally exist.

As the disease progresses, the symptoms between spinal anæmia of syphilis and those presented by ataxia and incipient myelitis differ so widely that there can be no doubt on the part of the observer which disease he is called upon to treat.

The treatment naturally divides itself into that to be pursued before any marked change has taken place in the calibre of the arteries, which may be denominated the first stage,—the period when the changes in the blood-vessels have taken place, which is the second stage, and the period when paralysis has fairly set in, which is the third stage.

The first subject for consideration is diet; its method of administration, the character of food to be allowed, its quantity, and the intervals that should elapse between attempts at nourishment. All those who make a specialty of treating diseases of the nervous system agree that in cases of malnutrition the first and most important thing is to get the patient to assimilate a proper amount of easily digested food. This is often found to be the most difficult part of the treatment. From the first the patient should be placed upon a plan of forced feeding. As there is usually a loss of appetite, and in many instances even a disgust for food, accompanied by weak digestion, it will be necessary to feed him with small quantities of concentrated nutritious aliment; it should, as a rule, be entirely liquid. It should be administered every second hour during the day and every third hour during the night. This plan should be pursued for a period varying from six weeks to two months, when it may be hoped that the invalid will not only have gained in weight but in strength, and that he may likewise have recovered his normal appetite, and even have a craving for solid food.

Should the stomach rebel at the frequent repetitions of food or at the quantity put into it, the intervals of repetition should be lengthened until it is ascertained by actual experience how much nourishment the patient can assimilate; as the case goes on to improve, the intervals can be decreased and the amount of nourishment increased. Milk is by far the best article that can be administered, but to prevent the appetite from becoming cloyed, good, strong beef soup should be alternated with the milk. A quart of milk and a pint of beef soup during the twenty-four hours is the minimum amount to be given. The quantity of milk should be gradually increased and the soup decreased until the

milk diet alone is used. The milk should be gradually increased in quantity until from three to four quarts daily are consumed. Should the milk be not readily assimilated, it will be rendered more acceptable to the stomach by adding four ounces of lime-water to every pint, shaking the mixture well, then adding the whites of two eggs, and again shaking; then sweeten to the taste, and render palatable by the addition of a tablespoonful of sherry.

The diet may be varied by the use of "Mellin's Food" dissolved in milk. A cup of cocoa, chocolate, or Rocohout may be used as a substitute for the milk. Pure vanilla ice cream, made of arrow root and cream, home-made, if possible, may be allowed occasionally. The juice of raw beef will be found to be a very agreeable dietetic change. It is prepared by taking a pound of lean beef, cutting it up, squeezing out the juice by means of a lemon squeezer, adding a single clove, placing the cup containing the juice into a vessel of hot water and letting it remain until it becomes warm before drinking. Koumiss may be allowed, and for a change butter-milk may be given.

Nutrition being of the utmost importance in the depressed condition of the nervous system, the greatest attention is to be paid to diet, for as soon as the general condition improves there is a corresponding amelioration of the nervous symptoms. The plan recommended should be persisted in until the patient has greatly gained in weight, say ten pounds or more, when there is usually a craving for solid food; but the change from fluid to solid food should be very gradual, only very small quantities of the most easily digested substances should be at first allowed, gradually adding new articles to the diet list as the case progresses. The patient's appetite may be stimulated by allowing such digestible material as are particularly fancied. If the appetite falls off and the patient begins to lose in weight, he must at once return to the method of forced feeding. Care must be taken to prepare no article of diet in the sick-room, and when the meal is served up, it should be made to look as appetizing as possible; every article should be perfectly clean and should be served as nicely as the circumstances of the individual will permit. If possible, the patient should not be allowed to know of what his meal is to consist, nor when it is to be served. Stimulation is not only necessary, but is usually indicated. As a rule, the sick person is already addicted to the use of ardent spirits, and their continuance is a necessity.

From three to four ounces of whiskey during the twenty-four hours will be sufficient, and as the patient goes on to become convalescent the quantity should be reduced, until finally it may be discontinued long before he leaves the physician's hands. The use of tobacco should be allowed only in minimum quantities, or, if possible, discarded altogether. It is always injurious in depressed forms of nervous affections.

The previous history and the condition of the patient must be the guide to medication. Generally speaking, those who present themselves for treatment have already been saturated with mercury, and their stomachs have lost all tone, and the power of assimilation is very poor. Usually, when the case first presents itself, medicine does more harm than good, by taking away the little appetite that the patient had left and producing continual nausea. When, however, the digestive apparatus is in fairly good condition, and an active course of treatment has not been pursued, or, if even the patient has been under medication, there will generally be indications for the renewal of specific treatment, as syphilitic lesions in some form, such as rupial ulcers and the like, will be found to exist. The question then presented is what is the best remedy, how, and when shall it be used?

If the forced feeding for the first three weeks has been persevered in, and the digestion has improved therefrom, then specific treatment may begin. But if the digestion has been weakened, either through over-medication or the abuse of alcoholic stimulants, good results may be hoped for from judicious fumigation, which may be resorted to daily for the space of ten minutes, after which the patient is to be wrapped in a blanket and put to bed, there to remain until perspiration entirely ceases. Should the perspiration produce exhaustion, the fumigation must be postponed to every other day. Fumigation should be continued for the space of three weeks, when it should be discontinued and medication *per orem* commenced. Should the stomach be in condition to bear internal treatment, the administration of iodide of potassium in small doses may commence. Five drops of the saturated solution well diluted and taken after meals may be administered. If the case progresses favorably, the dose should be increased to ten drops. If the iodide of potassium is not well borne, thirty drops of the aromatic spirit of ammonia should be added to each dose. The iodides should be continued for the space of six months, or there-

abouts, when mercury in tonic doses should be prescribed, either in combination with the iodide or by itself. This should be persevered in for another period of six months. As a rule, after having used the iodide for the prescribed time, it is well to stop it and recourse had to mercury, resuming the iodide after an interval of one month. If the patient is found to be not losing weight, it is well to continue the iodide with the mercury.

The nerve tonics, such as strychnia and phosphorus, are especially indicated. Strychnia administered hypodermically, one-fortieth ($\frac{1}{40}$) of a grain three times daily, is recommended; later it may be given by the mouth in combination with such remedies as have a tendency to produce reconstructive metamorphoses. Iron, though indicated, usually cannot be employed whilst the patient is weak and depressed, as it invariably produces headache, causes constipation, and deranges the digestion; but when marked improvement becomes manifest, then it is exceedingly beneficial. Of all the numerous preparations of iron, ferrum redactum, or reduced iron, is preferred; it can be pleasantly administered by sprinkling it, together with a little black pepper, on a piece of well-buttered bread, when it will be eaten by the invalid without his being aware that he is taking medicine. The bowels should be carefully regulated; a glycerine suppository or an enema of warm water will answer every purpose. When the tongue becomes coated and the breath "heavy," a powder composed of calomel gr. $\frac{1}{2}$, creasote gtt. i., pepsine gr. ii., sugar gr. v., and administered every two hours, and repeated until the calomel produces slight purgation, will usually suffice to restore the digestion and clean the tongue. Care must be taken in the administration of hypnotics; their influence is but evanescent; the effect of the remedy soon wearing off, and augmented doses rendered necessary. In fact, they may be considered as positively injurious, and other methods of producing sleep, to be presently referred to, are considered preferable.

From the first the patient should be kept in bed, where he should remain until he has gained both in weight and strength, which will usually occupy a period of about six weeks. At his usual hour for retiring he should be thoroughly massaged, when he will in all probability drop into a natural sleep. In the morning he should receive a warm bath and then return to bed, placed between blankets, and thoroughly rubbed with a mixture composed of

liquid cosmoline, three parts; alcohol, one part; the rubbing persevered in until the alcohol is evaporated and the cosmoline, as far as possible, absorbed by the skin. The body should then be rubbed dry with a coarse towel. It is of the utmost importance to keep the spine at perfect rest. With this object in view, a leather jacket braced with wire is to be fitted to the body and worn unintermittingly (save when the patient is being bathed or massaged). A plaster-of-Paris jacket may be substituted for that of leather when it is necessary to take expense into consideration. The jacket should be worn from three to four months.

In this variety of spinal anæmia, great benefit will be derived from suspension, practised as is done in cases of ataxia. At the beginning of the treatment it should be repeated every day and continued for the space of thirty seconds. As the patient becomes accustomed to the suspension, the time should be gradually increased to five minutes, and should be employed daily. The utmost gentleness must be observed both in elevating and in lowering the patient, so as not to twist, jerk, or jar the spine, and when the treatment is concluded he should be put to bed and kept at rest for at least one hour. This treatment to be persevered in for a period of from four to five months.

In cases of spinal anæmia associated with atonic impotence, applications of ice to the spine have given very gratifying results, especially when the invalid suffers greatly from pain in the lumbar region. In making the application a spinal ice-bag is preferred, especially when there is great pain in the lumbar region. Its application should be gradual, using it at first not longer than twenty minutes, and gradually extending the time to one hour. At first the sensation is unpleasant, but in a short time the patient enjoys the feeling, and in some cases it has been found so grateful that he is with difficulty persuaded to discontinue its use. A spray of cold water squirted over the body by means of a rubber tube to which is attached a pipe, while standing in the bath-tub, so that the benefit of a needle bath may be received, is very beneficial; it should be used for the space of about three minutes and applied preferably over the spine. As the case goes on to improve and the nervous symptoms are ameliorated, the leather jacket and the massage may be discarded, and in their stead the Swedish movement and gentle exercise with light dumb-bells substituted. As soon as the patient is strong enough to stand the exercise, a daily

walk in the fresh air should be directed, going no farther than a single square the first day, and gradually increasing the distance by adding at first but a block each day until the patient can achieve three or four miles without discomfort. Much good will result from travelling abroad if the patient can afford the expense.

The specific treatment that has been pointed out should be renewed every spring for the space of six weeks, to be recurred to for the ensuing five years. It is hardly necessary to add that the patient should be warned to lead a regular and simple life. In some cases of syphilis of long standing, where the patient has been for a long time on specific treatment, medicine seems to have little or no effect. In one of those that came under observation at the Philadelphia Hospital, the woman had taken as many as sixty grains of iodide of potassium together with a twentieth of a grain of bichloride of mercury three times daily, and grew progressively worse; the old rupial sores remained unhealed, and the necrosis of the frontal bone was unstayed. In such a condition of affairs it is best to stop all specific treatment and turn attention to nourishing the patient and building up the constitution, when, should there be evidence of improvement, some good may be hoped for by returning to the judicious employment of specific remedies.

Very often patients complain and suffer from continuous pain in the bones, and in spite of all treatment grow progressively worse. The proper treatment is the careful employment of opium and its compounds. Avoid the use of chloral and the bromides, as in this condition they tend to produce nervous complications as serious as the ailments under which the patient is already suffering. When, however, the pain is not severe nor continuous, a combination of eight grains of antipyrine with fifteen grains of the bromide of ammonium, given *pro re natâ*, will often act very well; these remedies, however, soon lose their power.

Galvanic electricity will often give temporary relief, but it is not believed to produce permanent benefit. The faradic current is of service in stimulating the wasted muscles; it appears to be slightly stimulating and has a tendency to produce a feeling of temporary comfort; it may be considered a substitute for light exercise. When paralysis supervenes, attention to nutrition, the condition of the patient's skin, bowels, and general health are the indications.

The prognosis in the first stages is very favorable, when the patient is enabled to enjoy the comforts of a home and has the means to carry out the prescribed treatment, which is always expensive and will occupy a lengthened period of time. The outlook, of course, is not as hopeful for a person who is relegated to a general hospital ward, where the luxuries of home and the necessary careful treatment are not possible; that they do recover, however, even under these disadvantageous circumstances, is apparent from the result of one of the cases received into the Philadelphia Hospital, when the woman recovered health sufficiently to leave the institution. This person returned to her life of dissipation, experienced a relapse, again entered the hospital, and finally died from exhaustion.

In the second stage, where there is marked emaciation attended with anæmia and great pain, the patient becoming slowly and progressively worse, the outlook is most grave; the poor creatures die either of marasmus, anæmia, or exhaustion. Of the six cases so frequently referred to three died, one quitted the hospital, by requisition, in a hopeless condition, and two recovered.

When the disease has passed to the stage of softening, the result, of course, is only a question of time. The tendency to relapse is marked. Indeed, it may be said that it is doubtful if a condition of robust health is ever attained; it is probable that there is always a great susceptibility to the development of some nervous disorders. Any indiscretion in the manner of living will produce a relapse. After recovery, it will be necessary to make the art of living a study. The person must lead the most regular life, keep good hours, take care not to be guilty of any nervous strain, indulge in no excesses of any kind, eschew the use of alcoholic stimuli, and, if possible, avoid the use of tobacco.

A CASE OF FECAL FISTULA FOLLOWING ABDOMINAL SECTION.

By CLARA MARSHALL, M.D.

Josephine G., aged eighteen years; colored; single; by occupation, a domestic; was admitted to the hospital, April 1, 1892.

Family History.—Negative.

Previous History.—Menstruation appeared at thirteen years of age, and for two years was regular and painless; after this she began to have dysmenorrhœa; her periods continued to come at regular intervals, but the menstrual flow usually persisted for a week or ten days.

Patient has never been pregnant, and there is no history of gonorrhœa or syphilis. She has never had a leucorrhœal discharge.

History of Present Attack.—Two weeks before admission to the hospital, after doing an unusually heavy wash, she was taken with severe headache, nausea, chilly sensations, and at the same time there gradually developed a dull heavy pain in the left side of the abdomen and in the back, extending down the thighs to the knees. There were also at times lancinating abdominal pains. The patient at the time of the attack was menstruating, and she states that this period was accompanied by a more than usually profuse hemorrhage.

In four days after the above named symptoms developed, micturition, although painful, was possible, but she finally became unable to urinate, catheterization being necessary; about the same time her bowels ceased to move and remained locked for over a week.

On admission the patient was in constant pain, had no appetite, and could not sleep. At first the temperature was normal, but during the few days following her admission it rose slowly but gradually to over 100° F.

Operation.—On Thursday, April 7th, the patient, after having been previously prepared by means of calomel internally and enemata given in the knee-chest position, was etherized and placed for convenience of operation in the Trendelenburg position.

After the abdominal incision had been made, and before the operator's hand could be introduced into the peritoneal cavity, a small amount of sero-sanguinolent fluid welled up and escaped through the wound. The uterus appeared to be normally placed; but on the right side the Fallopian tube and broad ligament were the seat of a number of cysts, several of these, each about the

size of a hickory nut, were unruptured, and were filled with translucent colloid-like material. One cyst, however, much larger in size than the other ones, showed signs of recent rupture in that it was collapsed, and had at one point a partially organized blood clot adhering to a ragged opening in its wall. The right ovary was bound down closely to the surrounding parts of adhesions.

On the left side of the uterus there was a mass of matted viscera, —small intestine, rectum, and broad ligament all bound together by well organized adhesions.

The operative procedure consisted in isolating as well as possible the cystic portion of the right broad ligament and tube, and excising this part after its extent had been included in three silk ligatures. On the left side the adhesions were broken up wherever possible, and a number of small bleeding points were secured by silk ligatures. The appendages on the left side showing no cystic change were not removed.

Finally, the patient was drawn down upon a flat table and the peritoneal cavity thoroughly flushed with a saline solution containing three per cent. each of sodium, chloride, and sodium bicarbonate. The pelvic cavity was then packed with moist iodoform gauze, the end of which was left outside the wound for drainage, and the abdominal incision closed (except where the gauze protruded) with silk sutures. The wound was dusted with aristol and dressed with dry, sterilized bichloride gauze.

The patient came out of ether very well, and had no after-vomiting or nausea.

After-Treatment.—After the patient had recovered from the effects of ether she was kept very quiet, and, although her thirst was intense, she was given nothing by mouth but small quantities of warm water. Thirst still causing great discomfort after a number of hours, large enemata of warm water were used with, however, but little apparent benefit.

In the afternoon of the same day rectal stimulation was begun with the use of enemata of whiskey (f3ss), elixir of valerianate of ammonium (f3i), and warm water (f3iv), given every two hours.

This was followed by the administration of peptonized milk, whiskey, and lime-water by mouth, at intervals of two or three hours; the stomach, from the first, proved retentive.

From the iodoform gauze in the abdominal wound there began to be almost immediately after the operation a profuse flow of

pinkish serum, which so saturated the external dressings that they had often to be changed; this free drainage continued without interruption until the gauze was finally removed.

The patient's condition keeping very good through the first night and during the second day, her bowels were cautiously opened on the second evening by a small enema of egg emulsion of turpentine, castor-oil, and water.

During the next eight days the patient's condition remained about the same, except that the fluid drained from the abdomen became gradually darker in color until it had assumed almost the hue of blood. Very little pain was complained of during this time, and at no time was the abdomen abnormally tympanitic or over-distended.

Besides stimulation by mouth and rectum, about one-eighth to one-sixth of a grain of strychnia and thirty drops of tincture of digitalis were administered hypodermatically during each day for the first week.

At the end of the seventh day the fluid draining from abdomen was noticed, for the first time, to have an offensive odor, and it was decided to remove the gauze; this was done, and no sooner had the last portion of gauze been removed than there was a gush of foul-smelling fecal fluid through the abdominal wound, followed by quite a free flow of the same material. An enema of warm water was at once given, when most of the warm water, along with much fecal matter, was ejected through the abdominal wound. This enema served a double purpose, for it demonstrated that the perforation in the bowel, although probably of considerable size, was situated well down towards the rectum, and also that the seat of operation in the pelvis was thoroughly shut off from the general abdominal cavity by a wall of plastic material.

After removal of the drainage-gauze the patient seemed to weaken considerably, but careful feeding by mouth was kept up night and day, and frequent hypodermics of strychnia and digitalis were given. Several times the fistula was irrigated with a solution of sulphurous acid (1-20), but finally this was discontinued and plain boiled water used in its place. Four days after removal of the gauze there began to be small fecal bowel movements, the amount of discharge from the fistula at the same time growing less. In the next ten days the fistula was irrigated once a day with plain warm water introduced per rectum; but at the expira-

tion of that time enemata were discontinued as the lumen of the tract had become much diminished by granulation, the discharge by degrees growing more serous than fecal, and the bowel movements larger. All this time the stools had been kept liquid by means of salines, and all food given had been semi-liquid in character.

From the second week after operation until the present time the patient's condition has been slowly improving, the temperature never rising much above what might be considered normal after abdominal section, except once, when an acute congestion of the liver caused a heightened temperature for a few days. The fecal fistula has ceased to discharge anything but a thin serous fluid with an occasional appearance of pus, and for the past week even the occasional escape of gas has ceased. Since irrigation of the fistula was discontinued, the only treatment which the local condition has received has been a thorough flushing of the external opening and of two small stitch-abscesses (due to infection of stitch-wound by the first flow of fecal matter after removal of the gauze) with peroxide of hydrogen in full strength. The two stitch-abscesses connect by a sinus (which is at a depth of about half an inch below the surface), so that when the peroxide of hydrogen is injected into one opening, it appears at the other two. The patient at present has a good appetite and is strong and well.

July 1st.—The local condition having reached the point above described remained stationary, except that on two occasions, after straining at stool, a slight amount of fecal matter appeared upon the dressing. On June 21st the patient was etherized, and the longitudinal incisions connecting the two small stitch-tube abscesses with each other and with the fistula were slit up upon a grooved director and in the line of the original incision, the tract curetted thoroughly, a few strands of silkworm-gut introduced for drainage, and the wound sutured with silk. The wound healed promptly from the bottom, thus leaving one opening to contend with instead of three; the fecal fistula, which would at this time admit of the introduction of a probe to the depth of an inch, was treated by injections of copper sulphate, beginning with a one-grain solution and increasing to a ten-grain solution. The patient, who seemed in excellent health before, is gaining in flesh; the amount of the copper solution which the fistula will hold at each injection becomes daily less, and there is now every expectation of entire recovery.¹

¹ Subsequently the patient entirely recovered.

After a careful review of the literature of the subject, I find that the number of reported cases of fecal fistula following abdominal section is few, though I am quite satisfied that there are many cases which have not yet been reported. I myself have seen two in addition to that under my charge, and through professional friends have heard of several others. Of the two cases just referred to, one was a colored woman, who, when I saw her, was too far gone with phthisis to warrant an operation for repair of the accident. The second was operated upon (the nature of the operation I never learned) with a fatal result.

A case is mentioned by Dornan,¹ in which, after an attack of vomiting, perforations in the intestine were exposed through the lower part of the abdominal wound. These perforations were supposed to have been made by wounds from needles used in applying the sutures to the abdominal incision, and resulted in an outpour of fæces. The patient recovered her general health, but the fistula did not close.

In an article by James F. Ross, entitled, "A Short Note on Fecal Fistula,"² three cases are recorded. In Case I., it was feared that the separation of adhesions had injured the bowel. In twenty-four hours the patient passed fæces through the drainage-tube without inconvenience; enemata appeared at the abdominal opening. At the end of a few days the tube was removed and the fistula began to contract. Case II. was one of pyosalpynx following labor; adhesions firm; fæces passed through drainage-tube; tedious though thorough recovery. Case III., exploratory incision (without operation) for supposed malignant disease. No drainage-tube; fecal fistula; good recovery. The history of these three cases, together with that of others of which I have knowledge, seems to show that conservative treatment is usually the best, since these fistula tend to recovery. In my own case, to have attempted an operation upon an inflamed and weakened bowel, probably the seat of new adhesions, in search of an opening low in the pelvis, would in all probability have resulted fatally. It is not always that one can review a case with the same degree of satisfaction.

[I wish to express my thanks for the careful notes of this case made by Dr. Frederick Willson, and to thank both Dr. Willson and Dr. Flora Pollock (resident physicians) for their intelligent and conscientious care of the patient.]

¹ Dornan, page 265.

² Canadian Pract., p. 91, 1889.

A FAMOUS COUNTRY OBSTETRICIAN TWO CENTURIES AGO.

LECTURE DELIVERED AT THE PHILADELPHIA HOSPITAL

BY THEOPHILUS PARVIN, M.D.

It has been asserted that biography is history teaching by example. The great prophet of this truth, the late Thomas Carlyle, in a letter written some years before, but not published till after his death, said, "From Homer's Iliad down to the New Testament Gospels,—to the Goethe Poems (if we will look at what the essence of them is),—all writing means biography, utterance in human words of heroisms that are not fully uttered except in the speech of the gods."

Concluding my three months' annual service in the hospital to-day, and addressing many who may have their fields of labor in the country, whereat rejoicing would be wiser than regret on their part, I have thought my last lecture might, not without some interest and usefulness, be devoted to a famous country obstetrician who was in the active duties of his profession two hundred years ago. The person referred to is Mauquest de La Motte, and he lived in Valognes, a town of Picardy, then one of the divisions of France.

Valognes had in 1872 a population of between four and five thousand, and in La Motte's day the number of inhabitants was doubtless less.

La Motte was born in 1655, and his parents must have had some means, for they were able to send him to Paris to study medicine. *Hôtel-Dieu*, of which he was first an externe then an interne, while admirable as a school of surgery, La Motte states had not the value in obstetric teaching which Peu and Mauriceau claimed for it, as during the five years he was there only during six months did he have the opportunity of following as a *topique*, the physicians charged with the care of women after delivery, and during this

period, though there were between three hundred and fifty and four hundred women delivered, there was only one extraordinary accouchement, and that ended spontaneously, no other resource than patience being required.

Here we notice the peculiar use of the word *topique*, so very different from that by Aristotle of the original Greek. A *topique* was one who followed the physician and wrote down his directions as to patients. Such employment of the word is not now known, and it is only used for a medicine locally applied, as an ointment, plaster, or poultice.

La Motte did not care to remain in Paris, for he had no influence to help him in getting practice, and he returned to Valognes,¹ and here remained during his many years of active professional life. He states that though he has not had the good fortune to practise in *Hôtel-Dieu*, Heaven did not fail to bless his efforts, and by adding reading to practice, observations to reading, and reflections to observations, in a little while he acquired such reputation that he often had three or four accouchements in a day, and that he succeeded in ending the labor favorably, whatever the situation of the child, without employing the crochet, or other instrument, the effect of which is to be dreaded.

La Motte died in his eighty-second year, and his "*Traité des Accouchemens*" was published when he was seventy-one years old. In it the following statement is made: "I have waited a longer time to publish this work, hoping to make greater progress; but my advanced age has decided me to issue it as it is, fearing that unforeseen death may deprive me of the pleasure of giving some light to my successors, trusting that the Lord will reward, not living in a place in which fortune can fulfil the desires of those who sacrifice to this idol."

If medical authors waited nowadays until they were seventy-one years old before publishing their works, the quantity of books

¹ The Obstetric Letters of Professor Ed. C. J. von Siebold were written in 1861, and in one of them he refers to the relative condition of obstetrics in Germany and in France in the seventeenth century, stating that in the former country "the art of accouchements was shamefully held in the bonds of surgery, while in France this was raised to the rank of a medical science by eminent men who devoted themselves exclusively to obstetric practice. Whom can we oppose to Mauriceau and La Motte, at the epoch when they shone so brilliantly at Paris?"

Here are two conspicuous errors on the part of a great obstetric teacher, one, too, of large literary acquirements, an error especially noticeable from the fact that he had quoted a little while before, with approval, the maxim of Cicero: *Nescire quid antequam natus sis acciderit, id est semper esse puerum*. La Motte, as pointed out in the text, practised only at Valognes, never at Paris. Moreover, he was a surgeon too, for he published a treatise on surgery, though undoubtedly his chief work was in obstetrics.

would be materially lessened, but who dare say there would be any deterioration in their intrinsic value!¹ Many a book is now issued long before the writer is half that age, and the motives for authorship may in some cases be far less noble than that which actuated La Motte,—such motives may be solely to get practice, to make reputation, to secure a place in hospital or college. Much of our medical literature is merely ephemeral, chaff thrown upon the altar of medical science, and for a moment blazing up, revealing the devotees, but giving no permanent light. If a man who thinks he is inspired to write were carefully to consider whether what he will say has not already been said, said, too, as well as, or better than, he can say it, and whether his utterance will be of benefit, not to himself, but to the profession, possibly he would be silent.

The conscientious writer will often find occasion to reproach himself for premature publication, and may wish that he had waited until he had attained more knowledge and wisdom.

La Motte's work is essentially a treatise upon clinical obstetrics. It contains reports of four hundred and sixty-five cases, almost all of them of pregnancy, labor, or child-bed, and the report of each is followed by comments under the head of *Reflexion*. The descriptions and narratives are graphic, and many of the comparisons and other figures often quite striking. In illustration of the latter statement consider the following: After certain assistance in a prolonged labor, "the child escaped from the vulva as readily as an eel slips through your hands;" "I delivered as quickly and easily as taking a handkerchief from my pocket;" "in less time than needed to recite a *Pater* and an *Ave*;" "while *Miserere*s could be said;" "in a single *Miserere*;" "the uterus was so closely applied to the child that a finger-nail could not be placed between them." A patient with dangerous uterine hemorrhage "has her soul upon her lips." How charitable the euphemism where he speaks of a woman of bad character as one *de moyenne vertu*! And then, after referring to the difficulty of the labor from structural rigidity of the cervix, a condition attributed by him to the licentious life the woman had led, he remarks, "Crime belongs

¹ Dr. Johnson, in his Memoir of Swift, has stated that he was not one of those minds "which amaze the world with early pregnancy," his first work, with the exception of a few political essays, was published in his thirty-fourth year. Early pregnancies are not uncommon in the medical profession, and miscarriages are not infrequent; sometimes, too, the pregnancy is apparent, not real,—flatulence may simulate a fetus.

to every age,—happy those who avoid, but miserable they who fall into it.”

His choice of words is often admirable, a lesson in a word. Thus, in speaking of podalic version, he always refers to the introduction of the hand by the term glide, indicating that this movement should be gentle as the gliding or flowing of water through an unobstructed channel. How important that the obstetrician remember that version must be by art, not by force! More than once rupture of the uterus has been caused by neglect of the rule.

One expression used by him, and the corresponding English not unknown in our day, certainly deserves criticism. A certain woman is spoken of as *jouissant d'une mauvaise santé*. Enjoying bad health can only be said of one who finds pleasure in complaining, and is not happy except when miserable. There is a passage in one of his “reports” which seems in its bold, coarse comparison almost like an echo from Rabelais: La Motte had to remove an adherent placenta, and the woman with her violent screams and movements of her body caused great delay and difficulty. He finally succeeded in getting away all the placental tissue in twenty fragments, and when the task was done gratitude came, “After having vomited all possible ordures, she showered her benedictions upon me.”

La Motte visited his patients, not in closed carriage with soft cushions and liveried driver, but on horseback. No distance was too great,—his rides were frequently five to ten miles, or fifteen to twenty, sometimes thirty or forty, or even a greater number,—no cold too severe, no night too dark, no roads too bad, no poverty too abject when the cry came from one enduring the martyrdom of maternity for him to hesitate or delay; he loved too well, he said, to relieve suffering women to refuse, and he tells how in one case of urgent need to which he was called he “rode as fast as a good horse with loose rein could take” him. So constant and unwearied in work was he that possibly he had in mind Lord Bacon’s words: “Men must know that in this theatre of man’s life it is reserved only for God and angels to be lookers on.” Like the Great Physician, of whom he did not disdain to be an humble follower, he was constantly going about doing good.

Those who have known the weariness and the exhaustion of the obstetrician after a long, difficult, or dangerous case of labor can, partially at least, appreciate such statements as the following:

Mother and child saved, "but I almost died, and I was so fatigued and exhausted I could not use my legs and arms for eight days." "My shirt was as wet from perspiration, though it was cold weather, as if water had been poured on it." "I believed I would have died when this accouchement, in which I had exhausted my knowledge and my strength, ended; I could scarcely breathe, and it was necessary to put me upon a mattress in front of the fire and to rub me with warm cloths."

La Motte discusses the qualities necessary for an accoucheur. He rejects Mauriceau's statement that he must have a small hand,—Mauriceau did not hesitate to let it be known he had such a hand,—and those of you who visit Berlin will find that one of the ablest of German obstetricians is a man of remarkable size. Physical characteristics are not the most important in La Motte's opinion, but he urges that the accoucheur "should possess those things which depend upon ourselves, such as good manners, prudence, sagacity, honesty, secrecy, although there is not a man without defects." "He should be religious and virtuous, and exempt from those great vices which, according to God and the world, detract from the character of an honest man."

Nevertheless there may be certain physical defects which prevent a man being an obstetrician. Many years ago a brilliant physician, with whom I was for a time associated professionally, took into our office as a student a young man who had one arm only, the other having been removed at the shoulder-joint, and to my suggestion that a doctor with a single arm would find his work embarrassing, if not impossible, "How, for example," said I, "can he ever apply the forceps?" My friend's reply was, "He will never want to, unless he is foolish enough to buy a pair."

So, too, should a man have the disability from which an obstetrician referred to by Siebold suffered, he would do as this one did: he abandoned practice because, whenever called to a case of labor, he had an attack of diarrhœa.

La Motte's *clientèle* included marquises, countesses, wives of civil as well as those of military officers, and, more numerous than the preceding, wives of shop-keepers, of artisans, and of poor laborers. He went as promptly to the poor as to the rich, and was equally faithful no matter what the social or pecuniary condition.

As a rule, he was remote from qualified consultants in his most serious cases, and hence was compelled to rely upon his own judg-

ment and skill ; consequently he developed greater ability, became a stronger man walking alone than if he had leaned upon others. In this respect the life of many a country practitioner to-day is similar to his, and there is a corresponding personal development. How I detest the gross injustice suggested in the words "only a country doctor !"

He was eminently conscientious, and believed it his duty to save life even though the imperilled patient refused his services. Hence he severely criticised the conduct of Peu and of Mauriceau, the great obstetric lights of his day, "who in their observations have reported several cases of women who preferred death to the means necessary for their relief, and in a spirit of humanity these accoucheurs have yielded to the feebleness of such timorous people and left them to their fate." He stated that in such circumstances he used a "salutary violence,"—in one instance he had the resisting patient held by two men, and in another by six women, while he conducted the accouchement,—that he regarded it a murderous compassion to abandon a woman in labor, and he who could save life and did not was equally guilty with him who destroyed it. "I always do that which is my duty to God and my profession, no matter what may be said about me."

He was, as every obstetrician ought to be, careful not to offend a woman's modesty, and the following is part of his direction for the avoidance of such offence: "It is necessary to cover the limbs of the patient, even the feet, so that they may not only be protected from the air, but in order to observe the rules of decency, which she feels are violated by the needless exposure of her person. A woman who is modest is offended if this precaution is neglected, and the remembrance of it will often remain longer than that of the bodily suffering which she has endured." He mentions the case of a lady in active labor to whom he was called whose pains ceased when she was placed on the bed for delivery ; she feared that eyes as well as hands would be used in her accouchement. It was only when she was assured by a female friend that La Motte would not so much as see her feet when her slippers were off, that a return of vigorous uterine contractions soon ended her labor. It is clear that the women of Picardy differed greatly in modesty in La Motte's time from those of Florence in Dante's day, for one of the instructions received by the poet in his visit to Purgatory was this :

"When from the pulpit shall be loudly warn'd
Th' unblushing dames of Florence, lest they bear
Unkerchief'd bosoms to the common gaze."

There must be no whispering in the parturient's room, for then she may suspect she is in great peril, and that even her sentence of death is pronounced. A case is given in illustration of entire cessation of labor pains in consequence of the mental anxiety caused by such whispering. He says, and the words are as true now as when first spoken, "the obstetrician does not always have it in his power to control babbling tongues and prevent the evil which indiscreet visitors may cause."

In referring to the differences in the duration of labor, and the usual causes of such variations, La Motte remarks, "My great experience persuades me that there is no general and absolute rule in all these labors, and that an accoucheur ought to be between fear and hope until the labor ends, because what promises to be a most favorable accouchement may become long and difficult, and, on the other hand, the most unfavorable may end in less time than expected."

He warns against taking charge of a case of labor without the knowledge and skill to conduct it safely, condemning timidity on the one hand and temerity on the other. It has sometimes seemed to me that the wise maxim of one of the greatest of Roman emperors, Marcus Aurelius, might be adopted by the obstetrician: "The art of life is more like the wrestler's than the dancer's, in respect of this that it should stand ready and firm to meet onsets which are sudden and unexpected."

Did La Motte escape reproach? Nay, that exemption might suggest his perfection, and that of the people among whom he lived. No man who makes the rule of his life the one which La Motte did, Do my duty to my profession and to my God whatever people may say, can in any age, in any community, escape calumny and unjust censure. He said, "It is common to attribute to the accoucheur all the sinister events that supervene upon accouchement; even thirty or forty years of successful practice cannot protect from the criticisms of fools and ignoramuses." Siebold, in mentioning some of the special trials to which the obstetrician is exposed, remarks, "It is necessary to add the ingratitude of the public, which forgets twenty cases skilfully brought to a successful end by the accoucheur for the last one terminating unfavorably, adducing it

to curse the operator; then the calumny of colleagues, this calumny usually emanating from those who know nothing of the matter." The calumny of colleagues may be the sorest trial a sensitive and conscientious physician is called to endure. There are men in the profession whose slanderous tongues never cease, and whose selfish, malignant natures are never happy unless they cause some to fall. It sometimes seems to me that they make the motto of their lives the words found upon the new letter-boxes, "Pull down." Nay, more, I think there was reason in Phocion's question. He at one time gave an opinion which met the general approbation and applause of the assembly, when, turning to some of his friends, he asked them, "Have I said anything foolish?"

Tidings of the obstetric forceps,¹ that of Palfyn, had reached him, but he declared that in *enclavement* of the head, this part so wedged in the pelvis that it was impossible to pass a catheter to empty a distended bladder, or introduce a rectal tube, it would be as easy to pass a cable through the eye of a needle as to introduce the blades of such an instrument. Let us be patient with his lack of faith. Has not the profession been slow of belief in other important advances in knowledge? Harvey's great discovery was rejected and despised by the medical leaders; and that of Jenner, so beneficent in results and universal in its application, exposed the author for no little time to remorseless ridicule and contempt. When Kergaradec made known foetal auscultation, many of the leading obstetricians of Europe denied its truth,—declared it impossible. Machiavelli asserted that a prince could not with impunity exercise all the virtues; and still more, one could not expect La Motte to recognize all truths. He failed to appreciate the forceps from a partial description of the instrument; and, moreover,

¹ In giving the report of a case in his *Reflexion*, La Motte makes the following statements: "A certain surgeon of Gand, who went to Paris some years ago, proposed to the chief of the Academy of Sciences an instrument of iron, with which he boasted he could deliver all women when the head of the child was caught or wedged in the passage without injury. One of the master surgeons of Paris, who had been directed to examine this instrument with reference to its use being practicable, did me the honor of asking me what I thought of the matter, without describing the instrument, for he had been required to keep that a secret. I did not hesitate to assure my friend that whatever the construction of the instrument, its use would be as impossible as to pass a cable through a needle's eye. In fact, how an instrument of steel or other material could be passed to the place where the head is arrested or wedged, usually in the strait formed by the ischia, the sacrum, and the pubis, so closely that a sound to evacuate the urine which has been retained for several days cannot be introduced, nor a canula for rectal injection, not even a myrtle leaf, how, I say, can such an instrument be applied and used to remove the infant from the peril to which the narrowness of the parts exposes it?"

The expression, "a cable passing through the eye of a needle," is, of course, taken from the passage in the New Testament, usually translated, it is easier for a camel to pass through the eye of a needle, etc.

this very instrument, known as the Palfynian hands, was not successful; it was left for Chamberlen to design an obstetric forceps which in its evolution has become necessary for the obstetrician of to-day.

In regard to the isolation of his life the following passage is interesting, and it also shows his self-dependence and the practical character of his opinions: "As I have lived at the extremity of a province surrounded on almost all sides by the sea, and have worked most frequently in the depths of a country without physicians or surgeons who could aid me by their counsels, I have been compelled to conduct my practice most frequently in seeking to aid nature and to calm the accidents of pregnancy and labor, so far as common sense and my reflection have furnished the means, without too great subjection to authorities, and making myself a slave to common usages, at least when I did not know the necessity for conforming to them in reference to the disease, the constitution of patients, and other circumstances from which practical considerations can be drawn."

La Motte's large obstetric experience, as given in his treatise, embraced a great variety of interesting cases. There are few obstetric emergencies that he had not met with; that he succeeded so well, not possessing those great blessings, the forceps and anæsthetics, is proof of his wise judgment and remarkable skill. In many important conditions, as I shall presently point out, his conduct was that of intelligent obstetric practitioners to-day.

He devotes some pages to the subject of menstruation. He made plethora the essential cause of this periodical flow, though he also held that impurities were eliminated by it. Instances of precocious menstruation were observed by him; among these were cases in which the flow began at nine years, and one at three. He observed a case in which the menopause took place at thirty-four years, without the subject suffering any inconvenience, while in another menstruation continued until sixty-one years, the time of her death. The last woman had given birth to thirty-two children before she was forty-five years old, when her husband died. This death was regretted by a medical friend, Dr. Doucet, because he thought if it had not occurred she might continue to bear children to an age which would astonish the world. But really, when a woman has brought forth thirty-two children, she has caused enough astonishment, and possibly might be cited by Malthusians

as illustrating over-production. An elephant continues bearing young until ninety years, but then she does not begin until thirty, and she produces only one in ten years. No, let us not regret this man's death when his wife was forty-five years old, if the consequence of his living would have been additions to the thirty-two children!

Among La Motte's patients were two old primiparæ, one forty-eight and the other fifty-one years.

The duration of pregnancy is considered by him, and while admitting nine months as the usual term, he believed that it might be less or more than this. He mentions an instance in which the period was, or seemed to be, exactly nine months: A woman was married on the 7th of January, 1692, and he delivered her of a mature child on the 7th of the following October, the same day of the week and the same hour that her marriage occurred.

The question as to the relative viability of children born at seven and at eight months is discussed, and La Motte, in opposition to a generally received belief which had come down from Hippocrates, and which had not entirely passed away among the profession in the first quarter of the present century, maintained that the seven months' child, while viable, had less chance of living than an eight months'.¹

La Motte adduces cases of his own, proving that infants born after seven and before nine months do live, and remarks, "M. Peu, on the contrary, says that children born at seven months are strong, robust, vigorous, and plump, and they all live as if they were at term, while not one, black or white, born at eight months survives." Mauriceau held a similar opinion as to the viability of children born at seven, and the non-viability of those born at eight months. Our author continues: "Although these very experienced accoucheurs found their reasoning upon astrology, mathematics, and philosophy, and although I have only in my practice that which I advance against their opinion, I do not hesitate to uphold the truth from these facts, though I have no foundation in these sublime sciences. The six observations chosen among a vast number of similar ones are enough to prove these gentlemen are not infallible, notwithstanding their great reputation and their consummate

¹ See remarks of the late Dr. Francis, of New York, in his introduction to the American edition of "Denman." In my work upon obstetrics I have given the chief reason for this long-held faith in the greater probability of living on the part of the child born at seven than of the one born at eight months.

practice, since I have proved by my practice that children born at seven and at eight months may live, but better at the latter than at the former," etc.

La Motte did not hesitate any less to break with traditional practices than with traditional beliefs. Thus in regard to the common employment of bleeding in pregnancy, he said, "It is not necessary to follow inconsiderately a practice with bad foundation, and which is not sustained by either reason or experience, in bleeding indifferently all pregnant women, when there is not a necessity." Nevertheless he found the necessity much more frequently than obstetricians of the present day do,—indeed, he mentions having bled one of his patients twenty-seven times, and, as if possibly a palliation or justification of the sanguinary treatment, refers to the case of a pregnant woman mentioned by Mauriceau who was bled fifty times.

He strongly condemned those midwives who sought to make manual dilatation of the passage, as he was persuaded that such pretended help was not only useless, but pernicious; it is possible that some practitioners of to-day need to be warned against this meddlesome midwifery.

La Motte still held the old notion that the birth depended in part upon the action of the child, though he had several cases of rapid labors when the fœtus was dead, and these ought to have taught him the error of this belief. Such belief in the child's power was only carried a step further by one of his patients, who, after the infant was born, begged La Motte to hold it securely to prevent its re-entering her womb! Had she not some reason for her request in the faith of the ages held by obstetricians, for surely if an infant was born by its own efforts, even in part, was there not a possibility of its returning by similar efforts?

As to presentation in labor, La Motte observes that while that of the head is most desired, there is not one more to be feared for the mother, or for the child, or for the reputation of the obstetrician, as there is greater danger of his failure. In all other situations he can aid the infant, while here his hands are tied in case the labor becomes slow, tedious, and contra-natural. Now, of course the secret of these opinions is easily explained, as in other presentations turning, podalic version, would necessarily be done, and extraction readily accomplished; but in this, if nature failed to expel the child, podalic version at a late period made the

delivery of a living child somewhat doubtful, and there might be cases in which the head was so impacted it was impossible to push it up to introduce a hand for turning. Craniotomy was only resorted to when the child was dead. Here I may observe that La Motte rarely employed any other means of extracting the head, after opening it with knife or scissors, and evacuating more or less of the cranial contents, than his fingers introduced in the skull through the aperture thus made.

La Motte was a master in podalic version, which Ambrose Paré had taught the profession again to employ, and it is quite possible, as suggested by Siebold, if it were oftener used, and the forceps less frequently, infants and mothers would suffer less injury. According to Schmitt, La Motte's predilection for turning made it a categorical imperative for the saving of the child's life.

La Motte asserted that in any other presentation than that of the head the Lord had given him the means of extracting living children, if he was called in time. In many cases he resorted to podalic version in just such conditions as obstetricians employ it to-day. Thus in prolapse of the cord, head presenting, it was his rule to employ turning by the feet, unless it was probable the labor would soon end spontaneously. In hemorrhage from placenta prævia podalic version again was his practice: in case the placenta obstructed the introduction of his hand, he did not hesitate to first detach it. When the ear or side of the head presented, his rule was podalic version, though in one case he succeeded in performing cephalic version. It is needless to say that bringing down the feet was his practice in presentation of the shoulder, and in some cases of eclampsia.

While La Motte's rule was to bring down both feet, the obstetrician of to-day usually is content with one, only it must be the anterior, or, as Farabeuf and Varnier¹ call it, the *good* foot, for if it be the posterior foot, then inevitably, the child being of normal size, the anterior hip is caught above the pelvic brim, and further progress is impossible, or difficult.

Did La Motte have no accidents in extraction by the feet? Twice, he tells us, the body was separated from the head by too strong pulling, in one case the assistant was the husband, in the other a midwife, and he was using a finger of one hand to draw down the lower maxillary, while the other hand was employed to push up

¹ *Introduction à l'étude clinique et à la pratique des Accouchements.*

the occiput, so as to secure prompt delivery of the head. However, he succeeded in each case, though not without difficulty, in extracting the head thus left behind in the uterus. Another accident that he sometimes met with—he mentions two cases occurring within fifteen days—was fracture of the arm. One is reminded of the story that Naegele tells of his being sent, some time after he had been thoroughly trained in obstetric manipulation, by his preceptor to assist an old midwife in a case of shoulder presentation. He went, performed podalic version, but failed to bring down the second arm, when the midwife exclaimed, "Break it, doctor; break it," and he followed her advice.

La Motte dressed such a fracture with a compress, pasteboard splint, and bandage; in nine or ten days union was complete, and there was no subsequent deformity.

He narrates a case in which he found head, feet, and hands presenting, "a multitude of parts," and of course the treatment was bringing down the feet still lower, while the head was pushed up.

In case the hand descended with the head, if the labor was well advanced, and could end without help, no interference; but he absolutely rejected any attempts to restore the arm, believing them futile and injurious, and employed podalic version without delay. Here the criticism he gave Mauriceau's alleged treatment must be mentioned. Mauriceau in narrating a case said, "I reduced the arm behind the head," and his critic replied that "it was not necessary to be a good accoucheur to see that a woman could not be delivered without the arm thus reduced being twisted and broken," etc. The late Sir James Y. Simpson,¹ in 1850, called professional attention to "a new form of obstruction in head presentations," that obstruction was from dorsal displacement of the arm, the very condition that Mauriceau's alleged method inevitably produced. It is somewhat singular that Sir James in his paper alluded neither to the method nor to the criticism.

Narrowed pelvis as a cause of dystocia La Motte was among the first, if not the first, to recognize, and the obstetric treatment in such narrowing, as well as of cases in which the head was unusually large, that he employed, was podalic version.

In case delay occurred in the delivery of the body, this being of unusual size, and he failed to extract by traction with his fingers

¹ Edinburgh Monthly Journal of Medical Science, April, 1850.

in the axillæ, he brought out the arms, and then delivered. This very method is now advised by an eminent obstetric practitioner and author of Paris.

He had observed malarial fever in pregnant and in puerperal women,—in the former, it was very liable to be the cause of premature labor.

He met with several cases of puerperal eclampsia,—in two the apparent cause was great accumulation of urine in the bladder, and the use of a catheter stopped the convulsions. Supposing these to have been cases of true eclampsia, how reconcile the facility of cure with the cause of the disorder? The disease in all probability has as its essential cause toxæmia; what the toxic agent or agents may be is uncertain, but we now know the poisoning may result from failure of elimination, not by kidneys alone, but by other organs also. Once the blood becomes poisoned, a slight cause may excite the convulsive explosion. Or again, it is possible that a large accumulation of urine in the bladder may, in one of several modes that might be suggested, *e.g.*, by reflex action, interfere with renal action, and thus contribute indirectly to the toxic condition of the blood.

One of La Motte's cases of eclampsia became paralyzed, a rare complication of the disease.

La Motte was called to two women spontaneously delivered while standing,—as Peu said of such cases, the earth received the children. One of these women, finding herself in active labor, had gone to the window to call a neighbor; the baby was born before she could return to bed, and was dragged across the floor by the cord as she returned; no injury to either mother or child. In the other case, in which the child fell to the floor, the cord was torn off at the umbilicus, so "that there did not remain the least extremity of any vessel, not even a vestige, and not a drop of blood escaped." La Motte applied dry charpie, black pitch, a compress, and a bandage; in a few days cicatrization was complete.

Ruptures of the perineum were occasionally seen by him, but of course in the practice of midwives oftener than in his own; he stated that these accidents were more liable to occur in rapid labors: he was accustomed to employ three sutures. So, too, some cases of recto-vaginal and vesico-vaginal fistulæ fell under his observation; in a few of these patients a spontaneous cure occurred, while others

were utterly hopeless, incurable, and "consigned," as he says with such just pathos, "to a life so sad that death is not terrible to them, only the long delay in its coming."

La Motte has given two interesting cases of early arrest of the lochial flow,—this entirely ceased on the fifth day after delivery; but as he found the women free from fever, no swelling of the abdomen, and no pain, he assured them that all was going on well, and that they had nothing to fear from the suppression: these facts are not without value to the obstetrician now.

He met with a case of incontinence of urine which continued four days after labor, then recovery occurred without treatment: this, too, is worthy to be remembered.

One of his patients, imbued with an old superstition, wore an "eagle stone" about her neck during pregnancy to prevent miscarriage; in order to facilitate labor this stone ought to have been transferred to the right thigh, but her pains were so active she forgot to make the change, and was soon delivered, a proof of the foolishness of the faith.¹

The power of the mind over the body was insisted upon by La Motte, and his manner and words were usually such that he inspired the greatest confidence. There was one patient to whom he was called, however, who had a shoulder presentation, who so feared his services, though she had seen several women successfully delivered by him, and who were subsequently perfectly well, that he heard her horrible screams, *hurlemens horribles*, when he drew near the house. He asked her if she was suffering so much, and she told him she was not. He delivered her of a living child. "Nevertheless she died half an hour after her labor ended without my being able to discover the cause, it being difficult for me to believe that my presence could produce so remarkable an effect upon her spirit; but she died, and death could only be imputed to the terror which seized this woman."

There were many cases of terribly prolonged labor with unutterable suffering, and the worst malpractice, both in the hands of male and of female accoucheurs, to which he was called. The agony and pain of childbirth are in some cases the severest suffer-

¹ We may smile at this credulity, but it was no stranger than that which prevailed in Rome in the time of Caesar, in regard to means for securing an easy labor. Plutarch tells us that at the Lupercalian feast many women, even of the highest rank, place themselves in the way, and hold out their hands to the lash, as boys in a school do to the master, out of a belief that it procures an easy labor to those who are with child, and makes those conceive who are barren.

ing human beings endure. Did not the unhappy Medea declare of even ordinary labor,—

“thrice would I stand in arms
On the rough edge of battle, ere once bear
The pangs of childbirth.”

How much more terrible and severe those pangs when continued for days!

No wonder that La Motte could not always refrain from reproachful words when called to cases in which both mother and child perished from the ignorance or neglect of the attendant. Thus, “Will not the *manes* of this woman cry out for vengeance upon a man so unworthy the name of an accoucheur as this one of whom I have spoken?”

La Motte is called one night to a woman in Cherbourg, who, undelivered, has been deserted by her accoucheur. Now, Cherbourg is eleven miles away, the roads are bad, I will get no fee for my time and toil, and while absent may miss attendance upon some dame of rank and riches. Moreover, there are many midwives and accoucheurs in that city, why should I go? Not thus did this brave man and noble obstetrician reason, and his conduct would put to shame any selfish, sycophantic, fashionable flunkey who knows no worship but that of a golden calf. La Motte went as quickly as he could, and found his patient lying upon a bundle of straw in the corner of a garret,—a condition of extreme poverty which even the good Tolstoy, luxury-hating, comfort-despising, could not reproach,—upon the floor a child’s arm and leg, these having been pulled off by the ignorant and brutal attendant, who then left the mother to die. La Motte soon delivered two children, one having lost an arm, the other a leg; the mother recovered. I cannot help recalling a remark made to me in 1864 by the late Professor Hughes Bennett, of Edinburgh. He had been speaking of the heroic treatment of pneumonia,—the general and local bleeding, the blisters, the calomel and tartar emetic,—once so commonly used, and which he contributed probably more than any one else to set aside, and then observed, “Human beings sometimes endure a great deal of killing.”

Another of La Motte’s cases was that of a woman who had been some days in labor, and here again the blundering and ignorant attendant had retired after tearing away an arm and a leg. La Motte proceeded to deliver, as in the previous case, first extract-

ing a child that had lost an arm, then another having only one lower limb, and finally a third living and unamputated, which probably had been saved from the amputating audacity of the former attendant solely because he was ignorant of its presence. He was called to a woman whose uterus and bladder had been torn by an ignorant midwife, and in his *Reflexion* upon this case he remarks that "an ignorant hand is more dangerous than an instrument."

Superfluous fingers or toes in infants he got rid of by tying a waxed thread around each, and tightening the thread after two or three days, when the member fell off.

He met with cases of labor in women with the vagina so contracted by cicatrices, following puerperal colpititis, that he could not so much as introduce his finger to feel the presenting part; but by incisions and dilatation the labors ended favorably.

La Motte's indications for the Cæsarean operation are well-presented, and prove that he was much in advance of the chief obstetricians of the age in which he lived, especially of Peu and Mauriceau.

I had marked several cases beside those to which reference has been made for presentation, but I forbear lest you should be detained too long.

The first article in the first volume of Elias von Siebold's "Journal of Obstetrics and Diseases of Women and Children"¹ is a long and appreciative consideration of La Motte's work by Dr. William Joseph Schmitt, of Vienna, and in the conclusion of the paper the author states that he has presented some golden grains from the work, but that he who seeks carefully and industriously will find still richer profit. So, too, I might say in regard to the material that I have presented, and the more valuable treasures awaiting the research of others. La Motte's work is a most important collection of cases carefully observed and admirably reported. Osiander said he was the best obstetrician of his time, and, it may be added, his treatise is an honest picture of an honest man. His manliness, as Schmitt has said, intrepidity, his constant presence of mind in the most desperate conditions, and his special gift in serious complications always to find the right expedient, his humanity, his religion, his piety, and the truest sympathy must be regarded as marked characteristics of this extraordinary man.

¹ Frankfurt-am-Main, 1813.

The life of such a man has its lesson for the young obstetrician, for by imitating it he may rise to larger usefulness, nobler living, and more enduring fame. In an age when the idolatry of wealth is so great, and when even in our own profession there are some, let us hope not many, who make the words of Horace, rather than the maxims of Solomon, the expression of their chief object of desire and effort,—

“Get place and wealth; if possible, with grace;
If not, by any means get wealth and place,”

we may find in La Motte's life and work a corrective for this unworthy ambition.

In the multiplicity of new books poured out by the press, more volumes issued now in a year than were in a century, let us remember that recent literature does not include all that is valuable; much that is new may not be true, some things heralded as novelities were known before their recent authors were born,—authors only in name, mere echoes and not voices,—and there were heroes before Agamemnon. The past has professional treasures which the well-educated physician will not neglect, and among these treasures I know none in obstetrics so valuable as the treatise of La Motte. This work is a monument to the industry, the knowledge, and skill of a practitioner who for more than half a century, in a comparatively obscure part of the country, faithfully toiled, not to get riches or fame, or to secure a place in hospital or college, but “for the glory of the Creator and the relief of man's estate.”

CARCINOMA UTERI.

By E. E. MONTGOMERY, M.D.

THE wards of the gynæcological department of the Philadelphia Hospital have always been a prolific field for the study of cancer of the uterus in its various forms, but unfortunately, however, most frequently in the later stages. In the majority of cases patients who enter this institution are those who have been suffering for a length of time, in whom the disease has extended beyond the uterus, involving the surrounding structures, and in whom, consequently, there is no possible chance for a radical procedure.

Cancer of the uterus has occurred in the great majority of cases in women who have born children, thus verifying the hypothesis of those who urge that the disease has arisen as a result of irritation taking place in unrepaired cervical lesions. In but few cases has the disease been found in any part of the genital tract other than the cervix. In but two cases in the experience of the writer has the disease developed or originated in the vagina, and in subsequent progress extended from the vagina upward to the cervix and downward to the vulva. While it is true, as we have said, that the disease has occurred in the great majority of cases in women who have presented evidence of having given birth to children, yet it is also true that it has occurred in women in whom there is indisputable evidence of the absence of any such cause for its origin.

The writer well remembers one patient—a Quaker lady—about forty-five years of age, suffering from hemorrhages, in whom the hymen was found undilated and unruptured, where an examination disclosed the entire cervix breaking down from an epithelioma. In a large number of cases the disease has originated in women near or subsequent to the menopause, but to this there have also been exceptions. One case occurred in which the woman was but twenty years of age, and others between twenty and thirty. In

these cases the disease was exceedingly rapid in its progress, the health of the patient being quickly undermined. The cases in which there has been a hopeful outlook for treatment have been few. Mostly the disease has been found to have destroyed the entire cervix, to have extended to the vagina, to the bladder, to the rectum, and laterally into the broad ligaments, showing general infiltration and an utter impossibility to secure a cure.

With such infiltration the disease was still slow in its progress, and death took place most frequently as a result of gradual exhaustion. Patients suffer continuously from pain, from recurring hemorrhages, and from exceedingly offensive discharge.

In some cases—particularly where the disease has extended forward, involving the anterior wall of the vagina and the bladder—the infiltration was of such a character as to lead to pressure upon the ureters, to partial obstruction, and to the development of consequent uræmia and coma. This termination of the disease is one of the most favorable, for by it the sensibilities are obtunded, the patient is released from the agonizing pain which has characterized the previous progress of the disease. The most distressing cases are those in which the bladder and rectal walls break down, permitting the urine and feces to be discharged through the vagina. The association of these discharges, together with the odor arising from the decomposing malignant tissues, is one of the most offensive imaginable. The patient is a source of agony to herself and of discomfort to every one about her. In the treatment of the disease the cervix has been frequently amputated, curetting and subsequent application of caustics to the diseased surfaces have been made, and in two cases vaginal hysterectomy was done. In the experience of the writer, palliative operations are of little benefit. The operation of curetting, while it removes the broken-down *débris* abrades tissue that is comparatively healthy, affords a site for the more rapid development of the disease, and accelerates—rather than arrests—its progress. In cases in which the patient is suffering from profuse hemorrhage so great as to threaten life, or in which there is much broken-down tissue, forming isolated collections of pus, which are reabsorbed into the tissue, producing a cachectic condition, the use of the curette and the subsequent application of some caustic agent, such as the chloride of zinc, bromine, or chromic acid, will temporarily arrest the waste and make the patient more comfortable, will enable her to regain

strength and improve in appearance; but the improvement is an evanescent one: the disease is silently making its progress, and the patient is soon in a worse condition than before.

In the practice of this operation extreme precautions must be exercised in order to limit the action of the caustic to the diseased tissues and prevent the destruction of the healthier tissues of the vaginal canal. The operation is best done by placing the patient under an anæsthetic, giving the parts a thorough curetting, and for this purpose no better instrument can be used than the finger; cutting away with scissors irregular masses and indurated tissue until the healthy structure or base is reached.

The parts should then be carefully washed with hot water, dried as thoroughly as possible, and all bleeding arrested by tamponing with a solution (one to four) of persulphate of iron. This application may be left in place for twenty-four hours. It is applied by squeezing out of the solution pledgets of cotton and packing these into the excavated surface. This dressing should be removed at the end of twenty-four to thirty-six hours, the parts carefully dried, all masses of clotted blood and iron carefully scraped away, and then cotton squeezed out of a solution of chloride of zinc, six to eight drachms to an ounce of water. These pledgets should be carefully squeezed out, flattened like a disk, and placed in contact with the surface of the excavation in such a way that no part of the diseased tissue escapes being brought in contact with it. Previous to the application the vagina should have been carefully coated over with an ointment of bicarbonate of soda in cosmoline, so that any superfluous material escaping may be neutralized or decomposed by the contact of the soda.

After the parts have been entirely covered with the pledgets of cotton, a pledget of dry cotton should be placed over it, and over this a pledget wet with a saturated solution of bicarbonate of soda. In spite of all these precautions, it will not unfrequently be found that the superfluous material has run over the external parts and given rise to desquamation of the surface of the vagina, and an exceedingly irritable condition of the vulvar outlet.

The procedure at best is but a temporary expedient. It is true that Sims and Van de Warker have reported cases in which the disease seemed to have been arrested, and many others in which its progress has been delayed, but this has not been our experience in the work of the Philadelphia Hospital.

In but two cases have we seen a condition sufficiently favorable to justify a radical operation. Both of these cases recovered. In one, however, there is a tradition that the disease subsequently recurred in the mammary gland, causing the death of the patient; the other patient has survived the operation two years, is now in good health, and has experienced no inconvenience from its performance. In both these patients the operation was done by means of the clamp, a modified Greig-Smith clamp being applied at either side of the uterus.

In the second case, the one still living, the operation was done in fifteen minutes. The patient, however, presented an exceedingly favorable condition for the rapid performance of the operation. The vagina was quite dilatable, the uterus readily displaced downward, and it was only necessary to cut around it, push off the bladder in front and the tissues posteriorly until the peritoneum could be reached; this was opened, clamps applied, and the uterus removed.

THE SURGICAL TREATMENT OF PUERPERAL SEPSIS.

By EDWARD P. DAVIS, M.D.

THE treatment of puerperal septic infection by surgical procedures has not as yet been so commonly practised that its indications and results are familiar. The percentage of recoveries under non-surgical treatment in a great number of cases is so high that surgery must show a good record before the puerperal woman who suffers from septic infection should be uniformly treated by operation. The employment of large amounts of alcohol and easily-digested food, sponging, packing, and bathing, and the use of saline laxatives, have resulted in the recovery of seventy-five per cent. of such cases.

As to the method of operative procedure, that question will readily be decided when the abdomen is opened and the uterus and ovaries are inspected. The difficult point for decision is the question of positive indications for operative interference and the time at which such interference is most likely to be successful. So far as the class of cases goes most fit for operation, we may for this purpose divide such into septic infection which shows a tendency to the formation of thrombi and emboli, with the development of pyæmia; and septic infection in which the lymphatics, and especially those of the general peritoneal cavity, are extensively involved. In the first class of cases abscesses must be opened and drained, whether occurring in the joints, in the pelvis, or in the subcutaneous tissues. These are the cases which do well under the general treatment already described, the opening of abscesses being resorted to as occasion demands. The following may serve as two examples of this sort:

CASE I.—A multipara, delivered in her own home after a normal labor, was admitted to the hospital with septic infection; her uterus was but little enlarged and firm. The abdomen was not distended, and the patient's bowels moved with but little difficulty. She had characteristic pyæmic temperature, remissions of fever

in the morning, and exacerbations in the evening. A vaginal examination failed to detect indications of exudate about the uterus. After the uterus had been thoroughly cleansed and disinfected, the patient was treated by cold sponging and packing, when her temperature rose, followed by the free administration of alcoholics and easily-digested food. The quantity of whiskey consumed was very large, although intoxication was never produced. After an illness of nearly three months, an abscess was discovered in Scarpa's triangle, which was opened and a half-pint of pus evacuated. The pus had burrowed down to the sheath of the femoral vessels. The patient ultimately recovered, and left the hospital in comfortable health.

CASE II.—A Russian woman, delivered of a child after normal labor, surrounded by great filth and in circumstances of destitution. She was infected by a midwife, and brought to the hospital in a septic condition. On examining her, no peritonitis was found, nor could extensive pelvic inflammation be detected. She developed, however, a very considerable number of superficial abscesses in the vicinity of the joints and upon her limbs. Seventeen of these abscesses were opened at various times by the resident physician. The patient progressed steadily towards recovery, and after a tedious illness was discharged cured. She received the same stimulating, supporting, and antipyretic treatment which was given to the first patient; in neither of these cases were the so-called antipyretic drugs employed.

When abscess-formation occurs in the pelvic organs, surgery demands that such abscesses be drained and disinfected. This can sometimes be done with brilliant results, but often is attempted too late to save life. An illustration of this fact is found in the following:

CASE III.—An abandoned woman, a chronic alcoholic, was admitted to the hospital with a history of having aborted, several months pregnant, two days before admission. There was reason to believe that abortion was produced criminally, although the exact method was unknown. She had high fever on admission, was pallid and exhausted, and had a foul vaginal discharge. The uterus was at once curetted, when several ounces of decomposed placental tissue, exceedingly offensive, were removed. The uterus was thoroughly washed out and tamponed with iodoform gauze. The patient's temperature fell slightly after the curetting, but soon rose to the point of high fever. There was little abdominal distention, although the patient complained of pain in her abdomen. She seemed to improve after the operation, but, forty-eight hours later, examination under ether gave reasons to believe that pelvic abscesses existed. The abdomen was at once opened, and pyosalpinx was found upon one side, with acute septic salpingitis upon the other. There was a beginning general peritonitis in addition. The tubes and ovaries were removed, the abdomen freely flushed with saline solution, and drainage with iodoform gauze was employed. The patient's condition was but little improved by the operation, and death ensued forty-eight hours afterwards, with a temperature of 106°. Bacteriological examination of the tissues removed showed the presence of several varieties of pus-forming septic bacteria. Post-mortem examination revealed general infection of the abdomen, with beginning abscess-formation between the liver and diaphragm. The patient's organs showed the lesions characteristic of chronic alcoholism, to which was added the cloudy swelling of acute sepsis. Septic pneumonia was also beginning.

In this case, the damaged condition of the patient's viscera caused by alcoholism rendered her power of resistance to septic infection and to the shock of operation much less than normal. Had she been brought under treatment earlier, her chance would certainly have been much better. Other cases of like nature, where pyo-salpinx, or salpingitis, or pelvic abscess has been found after opening the abdomen, are too frequent to need further comment.

Infection of the body of the uterus, septic metritis, has furnished an indication for the extirpation of the uterus in some cases. Schultze, in 1886 (*Deutsche Medicinische Wochenschrift*, vol. xii. page 769), operated upon a primipara, aged twenty-one, who had a bicornate uterus; the cord had been broken by traction and the placenta remained. The cervix was tightly contracted, and efforts at removal were unavailing. On the third day a foul discharge from the vagina was observed, and on the sixth day peritonitis threatened. The uterus was found, on opening the abdomen, to be septic; it was amputated at the neck and the stump stitched to the abdominal wound. The retained placenta had become a putrid mass. The patient ultimately recovered. Schultze urges that an infected uterus, where the intermuscular lymphatics are filled with septic matter, forms a focus of infection susceptible only to treatment by amputation or extirpation. He would select cases for such procedure in which distant foci of septic infection had not already formed.

The fact that part, or even the whole, of the placenta can remain for some time in the uterus without causing infection, and also that many women recover without operation, render a decision to operate a matter for grave consideration. Stahl (*Beiträg zur Geburtshülfe*, 1889, pages 33-44) and Roosenburg (*Nederl. Tijdschr. v. Geneesk*, Amsterdam, 1889, vol. xxv. p. 594) report also vaginal extirpation of the uterus for septic infection. Lapthorn Smith has recently described a case in which symptoms of peritonitis developed forty-eight hours after delivery. On the day following, the abdomen was opened, the tubes and ovaries found healthy. The body of the uterus was infected and the uterus was removed. On examination, the body was soft and contained the remains of a firmly-adherent placenta; a semi-purulent liquid was found in the uterine sinuses. The patient ultimately recovered.

Although the operation of amputating the uterus or removing

it entire is one of considerable severity, yet improvements in the method of performing this procedure will undoubtedly render it more successful.

Fibroid tumors of the uterus which become infected at labor offer another indication for extirpation of the uterus or its amputation.

CASE IV.—A primipara, ill-developed and of poor physique, was admitted to the hospital with the following history: She was engaged as a servant at a private surgical hospital and had concealed her condition of pregnancy. She was delivered after a precipitate labor without medical assistance until the third stage of labor. After the placenta was removed the uterus still remained large, and the presence of a second child was suspected. This suspicion was incorrect, and the enlargement was found to be a fibroid tumor. After admission to the hospital the patient did well for several days, when her temperature rose. The uterus was then curetted and thoroughly douched, and the patient was given stimulants and food freely. She improved for more than a week, her temperature declining and her strength increasing. The involution of the uterus proceeded normally, the fibroid tumor growing steadily smaller. Ten days after the curetting the patient grew worse and manifested symptoms of general septic infection. It was then determined to perform laparotomy, and probably to amputate or extirpate the uterus. Upon opening the abdomen, the site of the fibroid tumor was found to be occupied by an encysted mass of cheesy pus in which were the tube and ovary of that side; this mass was removed, and the tissues where it had been were disinfected by the free application of peroxide of hydrogen upon a sponge. The uterus was then amputated, and the stump was brought up to the abdominal wound. Death ensued forty-eight hours after the operation, and upon post-mortem examination the peritoneum was found united; there was no pus at the former site of the fibroid; peritonitis was absent; the abdominal incision had healed, and there had been no hemorrhage. Examination of the heart showed that it had ceased to beat in systole. Death had evidently occurred from sudden and complete heart-failure.

In this case, also, the operator was deceived by the apparently steady improvement of the patient after her uterus had been curetted and thoroughly douched. Had hysterectomy been done on her admission to the hospital, her strength might have proved adequate to the ordeal, although the general surgical maxim holds good, to avoid operation while the patient is improving without it.

In the lymphatic form of puerperal sepsis, where the general peritoneal cavity is so often early involved, opinions differ as to the advisability of operative interference. Many text-books are averse to any procedure which attempts to drain the general peritoneal cavity. Surgeons, however, are rapidly coming to the belief that this portion of the body should not be exempt from the ordinary usages of surgery. When and how to interfere in general peritonitis is, however, a question not easy to answer.

The following case is described, not to establish a universal rule for procedure, but to add an interesting experience to the data from which the profession may form a judgment: The patient was a Russian, aged twenty-three, an immigrant who arrived in America in a condition of great destitution. She was confined at a refuge for such immigrants, amid surroundings of filth, and was shortly afterwards brought to the hospital in a septic condition. There was a laceration of the perineum which required closing, and the patient's general condition was one of exhaustion. Her temperature rose shortly after admission to 102° , her pulse remaining above 100, and the lochial discharge becoming foul. She was accordingly anesthetized, and the uterus was thoroughly curetted and douched with a douche-curette. An iodoform suppository of sixty grains was placed within the uterine cavity, after which the patient's temperature fell to 99° . It soon rose again, however, to 102° , varying between 101° and 102° ; her abdomen was not distended, although the intestines were becoming markedly tympanitic. The patient complained of almost constant pain in the upper portion of the abdomen, and respiration seemed painful by reason of some irritation at the lower insertion of the diaphragm. Her temperature remained not higher than 102° ; her pulse rapid and somewhat irritable, and her general expression indicating a decided septic infection. The patient was not at that time under the care of the writer, but was transferred to his service during the temporary absence of a colleague. In view of the decided abdominal pain, the increasing tympanites of the intestines, the character of the patient's pulse, and her general appearance of infection, a diagnosis of beginning septic infection was made, and it was determined to open the abdomen. Accordingly, after suitable preparation, the patient was anesthetized and placed in Trendelenburg's posture in a good light. The abdomen was then opened, when the uterus and ovaries, with the broad ligaments, could be thoroughly inspected. As had been anticipated, no collection of pus in the pelvic organs could be discovered. The uterus had undergone a fair involution; the peritoneum was free from lymph or pus, but was reddened and turgid. Four gallons of a $\frac{1}{2}$ per cent. saline solution ($\frac{1}{2}$ per cent. sodium chloride, $\frac{1}{2}$ per cent. sodium bicarbonate) were employed, at a temperature of 110° , in irrigating the peritoneal cavity. The fluid was especially directed among the intestines and high up in the abdomen beneath the diaphragm; following this, one gallon of boiled water only was used. The fluid returned almost clear, a slight turbidity and a few flakes of lymph being present. A drainage-tube was then inserted to the bottom of the pelvis, and the wound closed in the usual manner. Following the operation the patient's temperature rose in a few hours to 102° , then fell to 100° , and rose again to 102° . Twenty-four hours after the operation the abdomen was again irrigated, without disturbing the patient as she lay in bed. This was followed by a steady fall in temperature until the patient's temperature fell to normal. The drainage-tube was very shortly removed, and a single strip of iodoform gauze was carried into the pelvis to serve as a drain if pus should form. This was afterwards removed and the abdomen closed.

A week after the operation the patient's temperature again rose to 102° ; careful examination of the abdomen failed to reveal, however, any signs of peritonitis, while an indication of her condition was afforded by the patient's complaint of pain in her joints. It was considered that the case had become one of multiple septic joint inflammations which are so often observed in cases of this sort. The use of free purgation, sponging, and alcohol in abundance resulted in the subsidence of the patient's temperature to normal. A second rise of temperature occurred, which could be traced to obstinate constipation, which ceased when the intestines were

thoroughly emptied. Since that time the patient steadily progressed to a perfect recovery. She was subject at times to attacks of pains in the joints, accompanied by a moderate fever, but these attacks gradually ceased, and the patient gained steadily in flesh and strength.

A deduction drawn from the consideration of a single case must be of little value as a guide to treatment, but in a question not fully decided, all evidence is to be taken into account. As has been remarked, in these cases the decision as to the conditions which justify opening the abdomen is difficult, especially in cases not typical in character. In well-ordered hospitals and at the hands of those competent to practise obstetric surgery, a patient's chances of recovery will be in no way jeopardized by the simple procedure of flushing the abdominal cavity. In a private house, where the services of a trained nurse may not be available, the difficulties are considerably greater. It is also true that well-conducted cases in private practice rarely afford examples of puerperal septicæmia. In the practice of those who do not employ antiseptics such infection is not uncommon, but at the hands of those who observe the proper precautions puerperal sepsis but seldom occurs. A well-nourished patient, who has lived comfortably in her own home, resists septic infection, and is more easily controlled by less severe measures of treatment, while the hospital patient, very often unfortunate, if not criminal, is frequently admitted after she has been confined amid surroundings of filth, and when she has already been the victim of gonorrhœa or syphilis.

From personal experience we believe that the treatment of puerperal sepsis should be largely as follows: First. Inspection of the perineum and vulva, with cleansing and cauterizing of puerperal ulcers; the employment of vaginal douches of bichloride of mercury, 1-4000, three or four in twenty-four hours; free purgation with salines, with turpentine stupes to relieve abdominal pain. Second. If fever and foul lochia persist, the uterus should be curetted and douched, creolin or carbolic acid being preferred as an intra-uterine injection. The uterus may be tamponed with iodoform gauze, or an iodoform suppository placed within its cavity. Intra-uterine douches should be continued but a short time, accompanied by the reduction of temperature by sponging, packing, or bathing, and the free use of alcohol and easily-digested food. Third. If, after the treatment just described, no permanent improvement follows, the patient should be placed in Trendelenburg's posture and the

abdomen opened. The uterus and ovaries and broad ligaments should then be thoroughly inspected, and any collection of pus in these tissues should be evacuated and drained. In the absence of a focus of infection in the pelvis, the peritoneal cavity should be freely irrigated with saline solution, and a drainage-tube employed for twenty-four hours after. Irrigation may be repeated in accordance with the indications.

In cases of retained and adherent placenta, accompanied by septic infection, or fibromata of the uterus with sepsis, hysterectomy is indicated. In conclusion, it may be said that antipyretic drugs are worse than useless in the treatment of puerperal sepsis; the reduction of temperature is best effected by sponging, packing, or bathing in either cold, tepid, or warm water. Such antipyretic drugs as are of value as nervous sedatives may be employed in suitable doses to produce such a result. In view of the deceptive character of the symptoms often presented in these cases, it is better to open the abdomen and make a positive diagnosis early rather than late; under proper antiseptic precautions such a procedure is a legitimate means of diagnosis, and one without which the faithful obstetrician is often unable to do his full duty to his patient.

REPORT OF SEVERAL ATYPICAL CASES OF SCAR-LATINAL INFECTION.¹

SERVICE OF DR. EDWARD P. DAVIS.

BY HENRY B. HITZ, M.D., AND FREDERICK WILLSON, M.D., RESIDENT PHYSICIANS.

CASE I.—Adele McL., white, aged six months; during latter part of December, 1891, and early in the following January, suffered from catarrhal pneumonia and gastro-enteritis, which left her pale and emaciated.

On January 25th, temperature rose rapidly from normal to 103°; lips were dry and pale; tongue coated; fauces deeply congested; tonsils much swollen, almost meeting in median line and covered with a whitish secretion; anorexia; vomiting; frequent greenish stools. Skin hot and dry, with no eruption; extensive bilateral phlegmonous infiltration of tissues in submaxillary region, more prominent on left side; general superficial lymphatic enlargement throughout body, and pronounced nasal and bronchial catarrh.

Until February 6th, symptoms remained unchanged, with exception of the submaxillary swelling on left side, which had progressively increased in size. On this date, fluctuation being detected in the swelling, a free incision was made, permitting the escape of about fifty grammes of yellow pus and broken-down gland-tissue; discharge from this sinus continued until death.

On February 7th, tonsils showed several necrotic areas on their surface. Examination of chest elicited large and small râles over both lungs, with bronchial breathing. February 14th, marked dulness over præcordium. Decided amelioration of throat symptoms; ulcers on tonsils healed. The temperature, which had risen from 103° on first day to 104.4° on fifth day and then gradually fallen until it reached 99°, now rose rapidly to 105°, and remained

¹ Through the courtesy of Dr. Edward P. Davis, we are enabled to report the following cases which were under his care in the Children's Department.

practically stationary until the following evening, when death occurred.

During early part of illness respirations ranged from 30 to 50 and pulse from 120 to 130; later, respiratory rate was 50 to 60 and the pulse rate 150 to 160.

There was no eruption until three days before death, when abdomen became covered with purplish petechiæ.

Post-mortem examination.—Body much emaciated. Petechial eruption on abdomen. Large sinus in left infra-maxillary region, leading to an abscess cavity which contained a small amount of yellowish pus.

Abdomen.—Intestine and stomach markedly anæmic, their mucous membrane somewhat thickened. Spleen very small and apparently normal. Liver large, firm, and pale; on section smooth, glistening, and mottled; weight, three hundred and twenty grammes. Microscopic section showed marked fatty infiltration. Kidneys normal in structure but very anæmic. Other abdominal organs apparently normal.

Thorax.—Lower lobes of both lungs, posteriorly, contained numerous broncho-pneumonia foci. No tubercular deposits. Pericardial sac enormously distended with thick curdy pus, and its walls coated with partially-organized lymph. Heart apparently normal.

All the lymphatic glands of body greatly enlarged. Dissection of neck exposed on left side an abscess-cavity about the size of a large walnut, apparently due to ulceration of left tonsil. On right side the tonsil was indurated and swollen but not broken down.

CASE II.—Henry S., a well-nourished white child, aged fourteen months. Admitted to hospital in good health, January 13, 1892. First noticed to be ailing on January 28th, when he was found to have swollen tonsils and a temperature of 103.4°; pulse, 142.

For several days did not appear to be very sick; he slept well and had a good appetite for liquid food. There was no eruption. Lips dry and fissured; tongue pale and coated; tonsils enlarged and red, with scattered spots of whitish secretion but no evidence of pseudo-membrane; fauces and pharynx congested; glandular swellings at the angle of jaw on both sides. Temperature about 101°. For the next nine days the symptoms underwent no change, except that the infra-maxillary swellings increased in size and a short hacking cough developed, with large and small râles heard

over chest posteriorly. The temperature ranged from 100° to 103°, with irregular and slight morning and evening variations. The superficial lymphatic glands in all parts of the body were markedly enlarged.

On February 9th, a small red spot appeared just below the right ear and rapidly developed into a phlegmon, involving the entire right side of neck and face, including the ear; the inflamed tissue was dark red, swollen, and pitted on pressure. This condition progressed until finally the right eye was closed by the tumefaction of the surrounding structures. Temperature, 102.6°.

By February 13th the pulse had grown weak and rapid, the respirations were labored, temperature had fallen to 100°, and death ensued. Just previous to dissolution, an ill-defined petechial eruption appeared on portions of the abdomen.

Post-mortem examination.—Body emaciated. Right side of face and neck much discolored and swollen; right ear also greatly enlarged and discolored. Right eye closed and presenting marked conjunctival and subconjunctival swelling. Pupils unequal. Tongue furred and showing evidences of recent ulceration at various points. No eruption on face or chest and but little on abdomen, except in inguinal regions, where there were numerous petechial lesions. Superficial cervical, axillary, supra-trochlear, and inguinal lymphatic glands greatly enlarged.

Abdomen.—Intestines anæmic. Mesenteric glands enormously enlarged, covering almost the entire surface of mesentery. Spleen large and firm; weight, seventy-two grammes. Liver, pale; on section, mottled; weight, three hundred and thirty-two grammes. Kidneys on section anæmic, except the pyramids, which were deeply congested. Other abdominal organs apparently normal.

Thorax.—Mediastinal tissue very œdematous. Patches of broncho-pneumonia in lower lobes of both lungs; pleuritic adhesions on right side. Bronchial glands much enlarged. Very large quantity of fluid in pericardial sac; heart normal except for a small subpericardial hemorrhage near apex.

Tissues of neck decidedly œdematous. Abscess in substance of right tonsil, opening upon surface of tonsil by necrotic tract. Brain apparently normal; weight, nine hundred grammes.

CASE III.—Joseph F., white, aged seven years. On February 10th, while at play, was taken with a chill, followed by vomiting and rapid rise of temperature to 102°; pulse, 140. Twelve hours

later a faint erythematous eruption appeared on chest and shoulders, quickly spreading over trunk and limbs. Tongue heavily coated with prominent papilla ("strawberry tongue"); tonsils enlarged; fauces and pharynx deeply congested; deglutition difficult; anorexia; nausea, and constipation. Large, painful swellings at angles of jaw, with general enlargement of superficial lymphatic glands, especially those of cervical region. The temperature attained its highest point (102°) on the first day and then fell gradually, until on the fourth day it had reached normal, where it remained.

By February 14th, the eruption on chest and abdomen had completely faded, while that on buttocks and legs was still quite distinct. On this day a small piece of tenacious, grayish membrane was removed from left tonsil, leaving a raw surface, which, however, did not bleed.

Twenty-four hours later eruption had also disappeared from the limbs, and there was an amelioration of all symptoms, except the enlargement of lymphatic glands.

By March 15th, desquamation had ceased and quarantine was removed. During entire course of disease urine remained normal, and there were no respiratory symptoms worthy of mention.

For three months previous to the appearance in the Children's Department of the several cases above reported, there had been no disease of known contagious character within this department; therefore, Cases I. and II. were at first regarded merely as severe tonsillitis, and were treated accordingly. The early appearance of Case III., however, with symptoms typical of mild scarlatina and the subsequent deaths of the first two cases, led us to look for a more profound cause.

The marked similarity in the clinical history and the corresponding pathological changes, as shown at necropsies, in Cases I. and II., point to them as probably having been due to the same morbid agent. Consideration of this fact, coupled with the occurrence of Case III., and subsequently of five more, typical of mild scarlatina, lead us to believe that Cases I. and II. were atypical forms of this same infection.

THE PREPARATORY TECHNIQUE OF ABDOMINAL AND PELVIC OPERATIONS.

BY WILLIAM EASTERLY ASHTON, M.D.

My object in selecting this subject as the title of my paper is to emphasize the care with which the aseptic and antiseptic preparations for an operation are carried out in the Philadelphia Hospital.

THE PATIENT.

1. *Rest in bed before operation.*—Unless the disease calls for an immediate operation, the patient is placed in bed for several days in order to properly regulate the secretions and excretions, to build up the strength, and also to prepare the abdomen and genital organs.

2. *The bowels.*—Too much stress cannot be placed upon the necessity for a careful regulation of the bowels. By thoroughly cleaning out the alimentary tract there is less tendency to subsequent tympany or paralysis of the intestines, or, should sepsis develop, the chances of recovery are greatly increased. It is my custom to administer a tablespoonful of a saturated solution of the sulphate of magnesia twice or thrice daily for several days before operating. I find that if the solution be kept in a cool place the salts are less objectionable to patients and more readily borne by the stomach. About six hours previous to the time fixed upon for operating, an enema is given composed of a tablespoonful of the sulphate of magnesia and a teaspoonful of the oil of turpentine in a pint of warm soap-water.

3. *Bathing.*—If the condition of the patient permits, a general bath is given daily, especial care being taken in the preparation of the abdomen and pubes, which are well scrubbed with a brush. The vagina and vulva are irrigated daily with a sublimate solution (1-3000). If a patient is unable to stand bathing, a general sponging is given, and the genital organs irrigated with the sublimate

solution, as it is important to keep the skin thoroughly cleaned and in an active condition.

4. *Seat of operation.*—Two or three hours before operating, the hair is shaved from the pubes and the entire abdomen is cleaned with soap, water, and brush. The parts are then washed with sterilized water, after which the abdomen is thoroughly bathed with alcohol. A sublimate solution (1-1000) is then applied, and a thick layer of sterilized gauze is placed over the site of operation and the surrounding parts, which is held in position by a bandage. After the patient is placed upon the operating-table, the lower extremities are wrapped in a woollen blanket, which reaches to the level of the great trochanters upon the sides and to the lower margin of the mons veneris in front. The upper extremities are secured by flexing the forearm upon the arm and fastening the wrist-band of the night-gown to the shoulder of the garment by means of safety-pins. A blanket is then placed over the chest to protect that portion of the body from exposure during the operation. The parts surrounding the field of operation are covered with sterilized towels. The layer of gauzes is then removed and the entire abdomen is washed with ether, followed by a thorough douching with sterilized water.

5. *Diet.*—The diet is nutritious and easily digestible; for at least two or three days before operating it is entirely liquid in character. On the morning of the day of the operation, consommé, or a similar broth which is free from grease, is given for breakfast. The proper regulation of the diet is important, as many of the patients are in a badly run-down state and illy-prepared to sustain the necessary shock of an operation. Again, my experience in the post-operative history of abdominal operations teaches me conclusively that a well-regulated liquid diet is a strong factor in securing a rapid convalescence.

6. *Drugs.*—I am using as a routine practice the sulphate of strychnia in the preparatory treatment of my patients. Its action upon the circulation, and the general nervous system especially, recommends it as a good tonic as well as a prophylactic agent against shock. Furthermore, I have had tympany occurring less often after operations since I began its use. It is given hypodermatically in doses of one-fifteenth of a grain three or four times daily, beginning three days before the operation, and continuing its use subsequently for about the same length of time. Before

administering the anæsthetic, the patient is given a hypodermic injection of the one-sixth of a grain of the sulphate of morphia, which is repeated as soon as the operation is over. The morphia not only prevents, to a great extent, the ether vomiting which usually follows, but it also quiets the patient and prevents restlessness.

THE INSTRUMENTS, DRESSINGS, ETC.

1. *Instruments*.—The instruments are prepared in the following manner: After a thorough scrubbing with soap, water, and brush, they are boiled for thirty minutes in a solution of washing soda (1-100). They are then placed in trays and boiling water poured upon them.

2. *Sutures*.—A number of silk ligatures of various sizes are cut in lengths of three feet each and wound on spools made of glass, which were devised by Halsted. The worm silk-gut is arranged in bundles of eight strands each and wrapped in a way which holds them together. The sutures are then sterilized by steam, after which they are placed in a specimen jar containing alcohol. At the time of an operation, the sutures to be used are taken out of the jar with a sterilized forceps and placed in a tray containing boiled water. Professor Coplin, of the Jefferson Medical College, in a private communication referring to the antiseptic properties of alcohol upon silk and other sutures, writes me that "sterilizing ligatures by steaming and immersing them in alcohol will preserve them aseptic. Alcohol is an antiseptic; it, however, lacks the power of penetration, and silk threads impregnated by cultures when immersed in absolute alcohol do not lose their infective properties, even after weeks of immersion, for the simple reason that alcohol does not possess the faculty of penetration in the meshes of 'size' silk. The same is true of catgut and other materials ordinarily used in surgery. This has been demonstrated over and over again, and cannot be refuted."

3. *Needles*.—The needles are kept ready for use in a jar filled with alcohol. At the time of an operation, those which are needed are taken out with a sterilized forceps and placed in a tray containing boiled water. Before returning them to the jar they are first washed with cold water and dried. They are then polished with emery-paper and carefully cleaned with soap, water, and brush; holding the shaft of the needle in the grasp of a hæmodynamic forceps enables the surgeon to thoroughly scrub the eye.

They are then made aseptic by boiling them in a solution of soda for thirty minutes, after which they are placed again in alcohol.

4. *Irrigator*.—The irrigating apparatus is composed of three separate parts,—a funnel, a rubber tube, and a glass nozzle. This irrigator can be made absolutely aseptic. The nozzle and tube are first cleaned with soap, water, and brush, and then immersed for one minute in a sublimate solution (1–500). They are then washed in sterilized water, and finally placed in a jar containing a solution of carbolic acid (ten per cent.). The funnel is sterilized at the time of an operation with steam. When the irrigator is needed its various parts are joined together, and it is wrapped in an aseptic towel ready for use.

5. *Rubber and glass drainage-tubes, rubber tubing for intestinal ligatures, and rubber dam*.—These are all rendered aseptic by the same process employed in the preparation of the glass and rubber of the irrigator, and are also kept in a solution of carbolic acid (ten per cent.). When they are needed they are washed in boiled water.

6. *Pads*.—During the past year I have employed gauze pads as a substitute for flat sponges. A full description of these pads will be found in the *Medical News*, February 20, 1892. They are made aseptic by placing them in a steam-sterilizer for thirty minutes.

7. *Sponges*.—After rendering them aseptic by means of repeated washings and the use of chemicals, they are placed in alcohol until needed. At the time of an operation they are taken out of the alcohol and washed thoroughly in warm boiled water, when they are ready for use. I never use a sponge a second time, even after an aseptic operation.

8. *Dressings*.—The gauze, absorbent cotton, abdominal bandage, and safety-pins are sterilized by steam. After being taken out of the sterilizer they are wrapped in an aseptic towel.

9. *Sheets, roller-bandages, and towels*.—These are first carefully washed and then rough-dried. At the time of an operation they are placed in the steam-sterilizer.

10. *Trays*.—The instrument trays, which are made of metal, are first washed with soap, water, and brush, and then made aseptic with steam.

11. *Brush*.—I mention the scrubbing-brush separately, because it is one of the most important agents we have in securing asepsis,

and because so many surgeons neglect to properly prepare it for use. Before using a brush for any aseptic purpose, it is placed in a steam-sterilizer for thirty minutes. Again, it is never used a second time in abdominal operations.

12. *Sterilized water.*—The water which is used in the preparations for the operation, and also for irrigation, is sterilized by boiling. The distilled water of the shops is not aseptic, and should not be used unless it be previously boiled.

THE OPERATOR AND ASSISTANTS.

1. *Hands and forearms.*—The finger-nails are kept short and evenly trimmed, care being taken to remove all hardened and discolored skin. The hands and forearms are scrubbed with soap, water, and brush for at least five or ten minutes. They are then washed in sterilized water, after which they are immersed in alcohol. They are then thoroughly bathed, for from one to two minutes, in a sublimate solution (1-1000), when they are again washed in sterilized water. .

2. *The head and face.*—The head and face are washed prior to an operation to remove from the hair any dust or dandruff which may have collected. To prevent the perspiration, which collects upon the forehead during the operation, from dropping upon the patient, I use a sterilized towel, folded in the shape of a triangle, to cover the head.

3. *Sterilized apron.*—The operator and assistants wear a sterilized apron or sheet to prevent contact with their clothes, which are necessarily more or less septic.

THE NURSES.

The forearms are bare and not covered, as is often the case, with linen sleeves. The strictest aseptic preparations are observed in cleaning the hands and forearms, and contact with clothing is prevented with a sterilized apron.

REPEATED ABDOMINAL SECTION.—REPORT OF A CASE IN WHICH THE PATIENT HAS UNDERGONE FIVE.

BY GEORGE I. MCKELWAY, M.D.

W. S., age twenty-three, color white, occupation alleged to be that of a domestic (she had been several times an inmate of the Midnight Mission), was admitted to the gynæcological wards of the Philadelphia Hospital on the 20th of August of this year with the following history, which is indefinite in the matter of dates. These, however, are not of importance.

About three years ago a homœopathic practitioner in Chicago told her she had an ovarian tumor on the right side, which she must have removed. She consented to the operation. As after events proved, her abdomen was opened and an ovarian tumor which did exist upon that side was not disturbed, but her left ovary and tube were removed.

About three months later she came into the Philadelphia Hospital under the care of my colleague, Dr. Hirst, still suffering from what proved to be a right ovarian cyst as large as a double fist. Dr. Hirst removed this, and she made an apparently good recovery. About two years later Dr. Joseph Price operated for a ventral hernia, reduced it and closed the abdominal walls, so that there was no more trouble from that source.

Early in the spring of this year she turned up in the German-town Hospital and had the fourth abdominal section. The following extracts from a letter from the operator will explain: He states, "I did the section for severe and continued pain due to the adhesions following her previous operations. These adhesions were numerous and firm, and in breaking them up two lacérations of the bowel were made and stitched up. Her recovery was good, and she expressed herself as much more comfortable than before the operation. In fact, she had no pain. Silkworm-gut

sutures were used. Coming into the house some months later she became insubordinate and violent and was discharged."

It was probably immediately or shortly after her discharge that she came under my care at the Philadelphia Hospital. She complained of much pain in her abdomen in the line of the four incisions. She had six sinuses, very small in calibre, and each discharging, not pus, but a clear, colorless, odorless serum. Five of them were situated where stitch-holes had been, and the other one was two inches away towards the anterior spine of the ileum. The lowermost sinus puzzled me much as to its communication. When she urinated she would discharge through it large quantities of this serum, as much as one or two ounces. Her statement on entrance was that she was *urinating* through this sinus, but an examination of the fluid passed proved it to be, as I have said, serum. She would discharge from this one sinus, however, under different conditions, as much as from four to six ounces of serum daily. Her dressings, her clothing, and the bed would be wetted by it. There were reasons not connected with her case why it was best for me to wait some days before operating, and during this time quantities of this fluid were collected. At no time was there any discharge of pus from any of the openings, and her temperature varied from 98° to 99°; in the morning being at the lower point, and on one or two days reaching the higher point later in the day. Her pulse varied from sixty-five to eighty. Her respirations were about normal when taken without her knowledge. When formally taken they would be from forty-eight to sixty per minute. This rate I believed to be assumed. On the 5th of September, with the assistance of Dr. Hirst, I operated. I found a place between some of the old incisions where I could cut down. Between the muscle and the peritoneum I found quite a cavity containing serum, and five of the sinuses led down to this sac. In it were two pieces of silkworm-gut, each about three inches long. They were not in the sinuses that led up to the opening in the skin, but were lying in this sacculated portion of the abdominal walls of which I have spoken. So convinced was I that the large amount of serum which she had been passing must have come from somewhere else than the comparatively small sac which I found, that I opened the peritoneum with much carefulness and difficulty, as omentum and intestines were adherent to it and to each other everywhere, to find another source. I found

nothing to indicate that the serous discharges came from inside the peritoneal cavity, and the adhesions were so universal that I deemed it inadvisable to interfere with the condition there. I laid open the five sinuses from the incision to the skin by passing a grooved director down through them into the incision and cutting through all between, curetted their surfaces thoroughly, sewed up the abdominal wounds with interrupted silkworm-gut sutures passed in the sound surface between where the sinuses had been, packed the sinus tracks with iodoform gauze, and so completed the operation; excepting that, not being able to find any communication whatever between the sixth sinus and the old or new incisions, I made cruciform incisions deep into the tissues where it occurred, curetting its surfaces also thoroughly and packed with iodoform gauze. She made quite a quick recovery. The wound was dressed daily and closed from the bottom up without pus, and when I went off duty on the 1st of October she was up and about the ward. She was shortly after discharged as cured.

The case is interesting for several reasons. First, because of the number of sections the patient has undergone, for while many women have had two abdominal sections, and some have suffered three, yet not many have undergone as many as has this woman. Again, because of the universal adhesions found. Any one who has opened an abdomen for the second time will remember how many adhesions are found. There are likely to be adhesions of the intestines to the stump, if the previous operation has been the removal of an ovary, tube, or uterus. The stump may be adherent to the abdominal wall. There may be adhesions of the intestines to the omentum, and there are almost certain to be adhesions between the abdominal incision and the omentum, or, if the omentum has not been carefully pulled down between the intestines and the abdominal incision, between these. This being possibly true in cases in which there has been only one previous section, some idea can be formed of the condition that seemed to exist in this woman's abdomen. Everything appeared massed together by adhesions, and I believe that any thorough separation of them would have been absolutely impossible.

Another point of interest is the result brought about by the leaving in of these two sutures. Of course, I cannot tell from which of the last two operations they remained, but they were most probably from the last operation, as otherwise they would

have occasioned trouble sooner than they did, and would have been discovered, had they been left in by Dr. Price (who also uses silkworm-gut) or any other previous operator. I suppose that in attempting to remove the sutures after the last operation the knots were cut off from these two and the bodies of the sutures left in the abdominal wall. I, myself, did this with one silk suture in another case eighteen months ago. I did not think it necessary to incise the abdominal wall to find it, and the patient has had no trouble from it whatever. The sutures that were retained in the case now reported did not cause suppuration, but, being loose, apparently did cause such a separation in the space usually occupied by the subperitoneal fat as to form there a sac, and so irritated the surfaces with which they were in contact as to provoke the great outpour of serum of which the patient was the subject. The reason that she passed this serum from the lower sinus in greater quantities than from the others was because the communication with it was more direct and was larger; and she passed it at the time of urinating because of the then pressure on the sac caused by the contraction of the abdominal muscles and the increased intra-abdominal pressure.

I have no doubt that this woman, who has no fear of the knife (familiarity having bred contempt), and who does enjoy the care and coddling that she receives in the excellent hospitals in which she has been, will, before many months, turn up again in some hospital asking for a section for the relief of abdominal pain. I am convinced that as time goes on the retractions of the adhesions that were formed prior to my operation, and of those that may have occurred in consequence of it, will occasion her pain and difficulty, and we may at some future time have somebody reporting the sixth or the seventh section upon her. The next operator, however, will have a very difficult task, if he succeed at all, should he attempt to thoroughly separate her intestinal adhesions.

INVESTIGATIONS.

By W. M. L. COPLIN, M.D.

“ — his journeys every path explore.”—*Holmes*.

MODERN advances in bacteriology, and the relation which bacteriology bears to advances in pathology, the symptomatology and lesions of diseases, lead one to a brief review of a few of the many points which are at present worthy of consideration. As one proceeds in the study of medicine and the acquisition of scientific knowledge, it is a gradual approach from a narrow sphere to one in which its very broadness confuses, and limitless fields, demanding investigation and promising rich harvests, open before the investigator. In all this confusion, like the traveller lost in the desert, an effort is necessary in order to settle upon a decisive field for action.

The blood seems to afford a wide field for the original investigator, so many things are absolutely unknown, and of many others our knowledge is extremely meagre. The life of the corpuscular elements of the blood, the question involved in their development, and destruction, demand further investigation. Whether in anæmia we have deficient blood-producing powers or increased destruction, has not as yet been definitely settled even in the face of the most advanced modern researches. It is also in the blood we find residing that unknown quantity, immunity, whether hereditary or acquired; whether acquired by the process of disease or induced by experimentation, we can here study it.

The theory that diabetes is in reality a febrile process, in which the elevated temperature is not brought about, but its equivalent is present in the excreted saccharine constituents of the urine; bearing upon this point, investigations and studies of diabetics suffering from febrile process must of necessity be a matter of unusual interest.

In typhoid fever, the immediate and exciting cause of death in

the ordinary cases is a question worthy of the investigator's steel. Whether it be an active septic infection of the entire organism, a mycosis of the blood, as it were, or the absorption of toxins developed in the alimentary canal by the morbid process, or the infection of the lymphatic system by bacteria as is represented by the enlarged mesenteric glands, or an interference with the hæmatogenetic functions as exhibited in the enlarged spleen, or perversion of the secondary assimilation as represented by the hepatic alterations and muscular degenerative processes, or what other process it is that brings about dissolution, is a matter which, to the thinking man, must be considered as demanding more accurate investigation. Again, in this disease we are to consider the relation of the etiological factor, the bacillus of typhoid fever, with infection of the mesenteric glands, of suppuration processes, surgical complications, studied in their gross by Keen, Parkes, and others, conditions in this disease predisposing or immunizing to other diseases, either parallel in essential alterations or diametrically opposed. A question as to whether typhoid fever predisposes to the process of suppuration, whether, after the bacillus theoretically produces sufficient poison to lessen its own spread, that is induced immunity, by whatever process you like, it becomes endowed with pyogenic properties. These are questions deserving further investigation.

In pneumonia, it is a question of where does the specific action of the microbic cause cease, and the activity of the secondary infective processes by pyogenic organisms assert themselves. There are reasons to believe that pneumonia, when not terminated by its extensive anatomical distribution, reaches a fatal climax through the intervention of other organisms, as the cocci of suppuration or the saprophytic organisms present in the pulmonary mucous tract, a secondary or complicating infective process. To be studied parallel with pneumonia, we have the consideration of inflammatory processes in the cerebro-spinal serous tract, as possibly representing another field of invasion by a similar, even identical, organism; that the cause is the same in both cases, I am by no means prepared to affirm; for this reason, I argue the necessity of additional investigations.

Among the surgical questions which demand investigation are the secondary infections which follow medical cases; for example, abscess as secondary to aural lesions. Why reduced temperature

in cerebral abscess? Is it due to an organism which produces a ptomaine causing the reduction in temperature rather than an elevation? or in what manner is it brought about?

Investigation in the causes of the complications in gonorrhœa; the extensive processes closely allied to those of some of the recognized forms of septicæmia; for example, the articular inflammation or inflammation of serous surfaces, the secondary infections, the extension by continuity, the invasion by contiguity, all demand further and more accurate observation.

The relation of psorosperms to carcinoma demands at once minute study. Their constant presence in all forms of malignant disease involving the hypoblast render their study from an etiological stand-point one of vast importance. In our race for microbial causes of malignant diseases, we have neglected what promises the most. Not only in malignant diseases are coccidia to be considered as active factors, but even in the infective processes going on in the liver and in certain forms of chronic intestinal disease followed by what appears to be secondary infection. The search for some of the forms of coccidia promise interesting results. Even so stale a disease as peritonitis demands a study for the presence and recognition of psorosperms.

Diseases involving the epiphysis of long bones, more especially those diseases associated with infective processes, demand more accurate observation. In this, English and Continental pathologists and surgeons have made rapid strides, and have secured a large collection of facts pointing to the micro-organisms of supuration as the primary infective agents and saprophytes as secondary etiological factors.

Among the diseases of the nervous system demanding more accurate observations, we have the study of the relation existing between syringomyelia, Morvan's disease, and leprosy as matters worthy of the most intimate clinical and bacteriological study. The relation existing between nervous disturbances due to lesions going on in the peripheral nervous system and mycotic invasion of this system is worthy of more intimate knowledge. The so-called reflex symptoms, about which we know so little, are deserving of more careful study. Whether convulsive seizures, occurring as a result of irritation in the intestines, are due to reflex processes or merely the manifestation of influences upon the central nervous system of one or more of the peculiar alka-

loids engendered in the alimentary canal at the time when the irritative processes are going on, has not been determined.

To the ophthalmologist, a matter of great interest lies in the etiological factors inducing the changes in the various forms of ophthalmia; in inflammations involving the different portions of the optical apparatus, and more especially those inflammatory processes possessing many of the characteristics now recognized elsewhere as invariably associated with bacteria. Indeed, it may be considered as doubtful whether the contagious diseases of the eye have been sufficiently understood, more especially their etiology.

PERFORATION OF MECKEL'S DIVERTICULUM IN A CASE OF TYPHOID FEVER.

By HENRY W. CATTELL, A.M., M.D.

THE length of the ileum from the ileo-cæcal valve to the centre of the diverticulum was $148\frac{1}{2}$ centimetres. From the mesenteric attachment to the top of the diverticulum was 5.8 centimetres; by 3.1 centimetres across, the transverse diameter of the flattened bowel being on the gastric end 2.8 centimetres, and on the valvular end 2.9 centimetres. This would make the diverticulum proper 3 centimetres to 2.9 centimetres in length and 3.1 centimetres across. There was a well-defined ovoidal longitudinal opening opposite the mesenteric attachment from the intestine into the diverticulum of about 2 centimetres in length by $1\frac{1}{2}$ centimetres in breadth. The intestines were firmly matted down together by fibro-plastic lymph in the median line, near the symphysis pubis. Two of the perforations hereafter to be described were discovered *in situ*. The one in the Meckel's diverticulum was not discovered by myself until the gut had been removed by the resident physician from the body, preparatory to washing. The first perforation was double and was 42 centimetres from the ileo-cæcal valve, situated in a Peyer's patch, the gut being much thinned out at this point. The second one was $17\frac{1}{2}$ centimetres farther up, while the third was situated deep down in the diverticulum, in the ileo-cæcal end, the blood-vessels on the serous coat being deeply injected. The diverticulum had evidently been in the agglutinated mass, where peritonitis had occurred, as lymph was freely attached to its serous surface, and a large ulcer was found just beneath the perforation in the diverticulum. Numerous ulcers were situated near the opening of the diverticulum, one towards the valve being large and angry-looking, ovoid in shape, with roughened and undermined edges. Another ulcer, longitudinal in direction towards the mesenteric attachment, was also in a precarious condition.

Many of the ulcers were in the transverse diameter, circular and crater-like, while most had assumed an elliptical form, though at times they were very irregular in outline. They were by no means confined to the Peyer's patches, but were found in any part of the intestine. There were ulcers in the caput coli which were evidently undergoing cicatrization. In my opinion, the man was suffering from a relapse of typhoid fever, as numerous ulcers were to be found scattered throughout the intestines varying from those which had almost entirely healed to those in which the perforation had occurred. The specimen was preserved for the museum.

DISORDERS OF PANTOMIME OCCURRING AMONG
APHASICS, STUDIED PARTICULARLY WITH
REFERENCE TO THEIR MEDICO-
LEGAL BEARINGS.¹

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BY CHARLES K. MILLS, M.D.
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PANTOMIME is the representation of ideas by action and movement; it is an intellectual act; according to Hughlings Jackson, it differs from gesticulation as a proposition does from an oath, although the terms gesture and pantomime are frequently used almost interchangeably. Amimia and paramimia are terms which have a corresponding import, as regards pantomime, to aphasia, paraphasia, paralexia, etc., with reference to speech. We may have a jargon of signs and motions as well as of words and of sounds; we may have a sensory or receptive, and a motor or emissive amimia; sensory amimia is, in fact, a form of apraxia. Pantomimic disorders may be mixed, combined, or associated; we may have all blendings of them just as we have the ordinary speech disturbances. A study of the losses and disorders of pantomime will often be of great assistance to the physician in diagnosis; and in some medico-legal cases decision will largely hinge upon the consideration of the presence, absence, or disturbance of intelligent pantomime. Different and conflicting interpretations are too often given to pantomime observed among aphasics; every case of aphasia should be studied for itself as to pantomime.

In nine cases of aphasia or pseudo-aphasia which were investigated, notable differences and peculiarities in pantomime were presented by the patients.

In one case of brachio-crural monoplegia almost complete motor

¹ The preliminary remarks of this article are the abstract of a paper read by invitation before the Boston Medico-Psychological Society, February 18, 1892; and also presented in abstract at the Meeting of the Section on Neurology and Medical Jurisprudence of the American Medical Association at Detroit, June, 1892.

aphasia with marked preservation of pantomime were present; in a hemiplegic with convulsions, word-blindness, verbal amnesia, and motor aphasia, there were marked sensori-motor disturbances of pantomime; in a third case, one of the right hemiplegia, and nearly complete aphasia chiefly of the motor type, the pantomime was varied and uncertain; a fourth case was one of right hemiplegia with marked contractures, complete aphasia of the mixed type with a single recurring utterance, and almost complete animia; a fifth was a case of right hemiplegia, paralysis of the face, almost total sensori-motor aphasia, and obstinacy and energetic emotional gesticulation. In a sixth case, of marked hemiplegia of gradual development with motor aphasia and anarthria, only a slight degree of loss of pantomime was shown; while case seven, one of right-sided pseudo-bulbar paralysis with anarthria and preservation of writing ability with the left hand, exhibited also full preservation of pantomime. Case eight was an example of right-sided pseudo-bulbar paralysis and ophthalmoplegia, with anarthria, marked oro-lingual paresis, and full preservation of pantomime, but with considerable mental apathy. The ninth and last case recorded was one of double hemiplegia from successive lesions on the right and the left side of the brain, with absolute abolition of speech and pantomime.

The study of pantomime may become an important diagnostic aid in fixing subcortical lesions, and particularly the position of a subcortical lesion with reference to its distance from the cortex. Some of the cases detailed showed that when the lesion was entirely in the straits between the ganglia, the corona radiata escaping, pantomime was either not lost or soon entirely regained. The speech defect is of the nature of an anarthria or pseudo-bulbar affection, and a diagnostic point is the ability of such patients to throw even into the paralyzed members some volition.

Marked differences in the disorders of pantomime will be found in cases of paralysis and of motor and mixed aphasia which are apparently identical, or at least very similar in character, which identity or close similarity, however, will often be found to be apparent rather than real; for investigations will show in many cases differences in degree and character of the motor paralysis, sensory symptoms, and aphasia, which are sufficient to separate the pantomimic disorders into classes.

The medico-legal investigator, even without any appreciation of

the nature, extent, and location of the lesions, would recognize important differences between these patients,—difference both in speech and pantomime, which make it essential for just decisions to carefully study both.

The “yes” and “no” of an aphasic are well known to have very diverse degrees of value. One of these two words may be used to express both assent and dissent; or with its proper meaning; or to express assent when dissent is meant; or simply as an emotional, interjectional, or accidental expression. In like manner, the usual pantomimic method of expressing assent by the forward nod or bowing of the head, and of indicating dissent by shakes or half rotations of the head, or any other movements apparently meaning “yes” or “no,” will be found in aphasics to have as many interpretations as the articulated “yes” and “no.”

Great care should be taken not to misinterpret the emotional manifestations of an aphasic. The gestures and appearances of the face indicative of displeasure, anger, obstinacy, and irritability, etc., are often strongly suggestive of dissent; while, on the other hand, those which merely indicate pleasure, amusement, or playfulness, may sometimes be mistaken for assent or accord,—facts which two of the cases particularly illustrate.

True amimia is an intellectual disorder, just as true speechlessness. It may be correct to say that emotional language is apparently unaffected in aphasics, but it would not be correct to say that it is entirely unaffected. The expression of the emotions, while frequently correct, sometimes energetic, and often violent, is, in serious cases of disturbance of intellectual pantomime, not uniform and under control. In many, normal individual emotional manifestations may be instantly controlled at any stage, and, in accordance with varying inhibitory powers in different individuals, weeping can be turned to laughing; a smile to a frown; the sounds of lamentation to those of rejoicing, by the trained and skilful actor, and in varying degree this power of control is preserved in all normal individuals. In aphasics with serious disturbances of pantomime, the losses shown on the emotional side are seen in meaningless continuations or repetitions, in slow transitions, and undue excitement.

The following are the notes in detail of two of the cases described in the full paper:

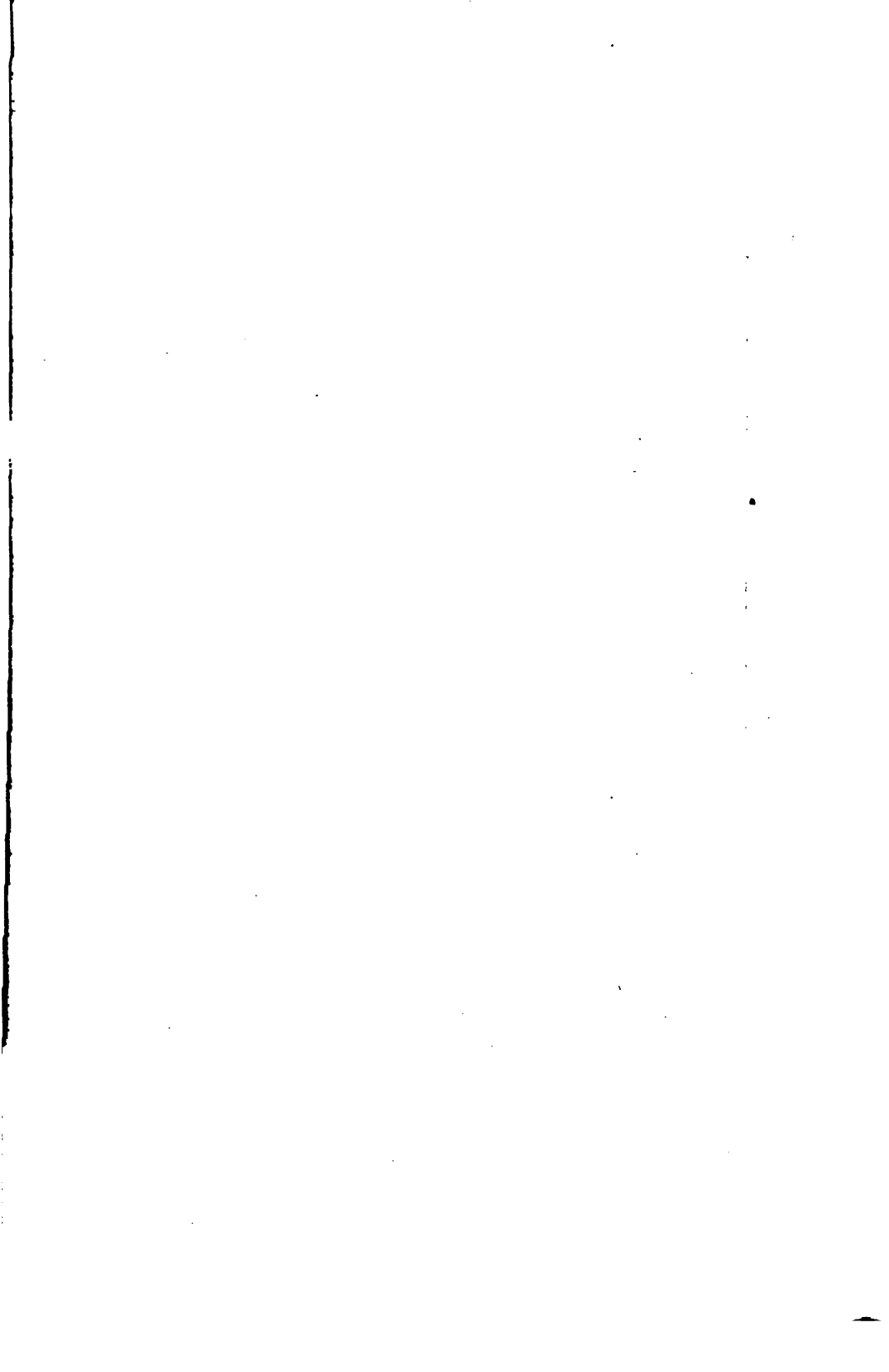




FIG. 1.—Aphasia and hemiplegia, with unreliable pantomime.

RIGHT HEMIPLEGIA; NEARLY COMPLETE APHASIA, CHIEFLY OF MOTOR TYPE; VARYING CONDITIONS OF PANTOMIME.

CASE I.—R. B., aged fifty-four, white, has been in the wards and out-wards of the Philadelphia Hospital most of the time for twenty years, having first entered the institution because of an attack of apoplexy which occurred during labor and left her aphasic, and paralyzed on the left side. She soon, however, became able to walk. Nine or ten years after the first attack she had a fit, and about three years ago she probably had a second apoplectic attack or seizure, falling in the out-wards of the hospital. Since this fall she had complained of much pain in the right thigh and had not been able to walk.

This patient showed a curious confusion both of speech and pantomime. She apparently understood all, or almost all, that was said to her, but seemed to take in what was said with great slowness. She conveyed the impression of one who required a sharp and strong mental stimulus to whip her cerebral centres into activity. She assented by "yes" and dissented by "no," and oftener than not correctly; nevertheless, her "yes" and "no" could not by any means be relied on: she evidently used sometimes one for the other, and presented a difference from some patients in never correcting herself. While apparently answering properly to some easily understood query, in other cases her assent or dissent by speech was foolish or absurd. When asked, for example, if her name was Smith, she answered, "yes;" Brown? "yes;" Jones? "yes," etc. She could not or would not repeat anything from dictation.

Her pantomime was much affected and, like her speech, of a confusing variety. Frequently, for instance, she used the forward nod for assent appropriately, and similarly the sidewise shake or rotation of the head for "no." Now and then, however, she evidently nodded "yes" when she meant "no;" and this pantomime, like her speech, was never corrected spontaneously. She never used, or could be induced to use, her unparalyzed hand and arm to enforce anything she said. In attempting conversations with her she usually made good use of her face for emotional expression,—smiling when pleased, frowning when angered or displeased, etc.

To the little speech and pantomime this patient had, the word unreliability was particularly applicable.

The peculiar expression and the form of paralysis and contraction of the arm present are well shown in Fig. 1.

RIGHT HEMIPLEGIA WITH MARKED CONTRACTURES; COMPLETE APHASIA OF THE MIXED TYPE; A SINGLE RECURRING UTTERANCE; ALMOST COMPLETE AMIMIA.¹

CASE I.—J. R., aged forty, had had two paralytic attacks. The first had caused moderate loss of power in the arm, leg, and face,—greatest in the arm,—and, so far as could be learned, had not left her with any aphasia. A few months later, three years before the examination here detailed was made, she had a second and more severe apoplectic seizure, which caused profound right-sided paralysis and aphasia. The right lower extremity was entirely helpless, and showed some permanent flexure

¹ For the opportunity of studying this patient, I am indebted to my colleague, Dr. F. X. Dercum, under whose charge she is at present.

at the knee, the toes extended, and the foot slightly flexed; the right upper extremity was also totally paralyzed, the wrist and elbow in a permanent position of slight flexure, the fingers were extended and somewhat approximated to and looped around the middle finger.

The lines of the face were not so well marked on the right as on the left. The tongue could be protruded and deviated to the right. In volitional movements of the mouth and lips—as in an attempt to display the teeth—the face, or, more correctly, the angle of the mouth, was drawn to the left.

Sensation was apparently unimpaired, but the examination could not be thoroughly made. The right knee-jerk was quite spastic, but no ankle-clonus was elicited. A tap on the right patellar tendon was followed by visible and palpable contraction of the quadriceps muscle and tendon, but, probably owing to the partial fixation of the knee-joint, the leg was not propelled. At rest, the toes of the left foot could be seen in regular, rather fine, movement. This hyper-irritability of nerve, perhaps also of muscle, was illustrated in the right upper extremities. When the dorsum of the wrist was tapped, a feeble but distinct clonus became apparent, and gentle taps on the other tendons or muscles—triceps, deltoid, biceps, etc.—caused contractions.

Whether or not this woman was word-blind, I could not determine without a knowledge of her previous history. She was not word-deaf, at least not completely so. She impressed me as one of those aphasic patients who, having first been word-deaf, or largely thus affected, had gradually regained some power of understanding spoken words. She was certainly not psychically blind. She could close the eyes, protrude the tongue, etc., when these or similar performances were gone through before her; she could also protrude the tongue on command, close the eyes, and lift up the left hand, but scarcely more than this.

Her speech and pantomime might be said to be summed up in her “la-la” and laugh, and a much less frequent expression of anger or displeasure, which was usually accompanied by a movement of covering her mouth with her hand. The appearance of her face could not be said to be without expression, but, like her recurring utterance, it was an appearance nearly always the same. It might mean that she was pleased; it might signify assent or dissent; it might mean nothing at all. Sometimes the “la-la” and the laugh became louder and more emphatic, but that was all. She never nodded the head in the usual manner for “yes” or for “no.” Only two differences could be made out in the study of her case,—one that her usual utterance and grimace were at times more demonstrative or even more violent than at others; the other was as above stated, that she had a look of displeasure accompanied by putting the hand to the mouth.

A case of this kind would rank in general terms as one of mixed concept-motor aphasia. Using the ordinary terms, her loss of pantomime and her loss of speech were both amnesic and aphasic, the former largely predominating. She seemed to be totally unable to conceive or recall either proper words or movements. The lesion was of such a character as to have prohibited any education of her right hemisphere for these purposes. It probably destroyed not only both capsules, but also the internal commissures for speech.

The following quotation from Kussmaul is of interest in connection with the report of this and the preceding case:

"A woman was paralyzed on the left half of her body and aphasic from apoplexy. She still had at her disposition only the following little phrases, which she uttered with interjectional sprightliness: '*Oui, parbleu!*' '*Tiens!*' and '*Vous comprenez!*' When asked if she wished to eat, she answered, '*Oui, parbleu!*' What was her name? '*Oui, parbleu!*' or also '*Tiens!*' in a mocking, snappish tone. She seemed persuaded that her answers were to the point. She often added '*Vous comprenez,*' in a tone in which a person would use it who thinks he has convinced the person speaking with him. She often made use of gestures which were as useless and limited as her discourse (Peter). Here was amnesic or combined amnesic and ataxic derangements."

INTERESTING CLINICAL CASES: I. HYSTERICAL APHONIA, HEMIANÆSTHESIA, AND DYSCHROMATOPSIA. II. APOPLECTIFORM ALCOHOLIC NEURITIS. III. ADULT CHOREA, WITHOUT HEREDITARY HISTORY.

SERVICE OF DR. CHARLES K. MILLS.

REPORTED BY JAMES F. LEYS, M.D., RESIDENT PHYSICIAN.

I.—HYSTERICAL APHONIA, HEMIANÆSTHESIA, AND DYSCHROMATOPSIA.

CASE I.—V. M., aged seventeen, child's nurse, born in Bavaria, has been seventeen months in this country, and was in good health on her arrival. She had menstruated regularly for more than two years. She remained well until May 1, 1891, when she had diphtheria, and made a good recovery; but her menstruation, which had stopped, was not re-established. On August 15, 1891, she again became ill; her chief symptoms being obstinate constipation, vomiting, and great weakness, especially in the legs. She remained in this condition until September 1st, when she was admitted to the Presbyterian Hospital, where she was treated with electricity daily for two weeks. During this time her voice gradually became faint, and she suffered with headache, but she had at no times pain in her limbs and body.

She was brought from the Presbyterian Hospital to the Philadelphia Hospital, September 17, 1891, still complaining of general weakness and obstinate constipation. Loss of voice was complete; she could speak only in a scarcely audible whisper. Her respirations were eighty to the minute, often more, and were short, jerky, and shallow,—a typical "nervous breathing;" the pulse was of low tension, weak and rapid; the tongue was pale and flabby. The expression of her face was strongly suggestive of some psychoneurosis. Her gait was dragging, the weakness apparently mainly in the right leg, and she complained of this more than the other. Examining her for separate movements of both upper and lower extremities, they were found to be all preserved, but showed weakness and inefficiency on the right side, especially in the foot.

She was completely hemianæsthetic; a needle passed completely through a fold of skin pinched up on the right leg, arm, or right side of the trunk elicited no expressions of pain,—the anæsthesia of the trunk extended exactly to the median line. Her nose, however, was anæsthetic on both sides, the only place in the whole body where the anæsthesia extended beyond the median line.

On September 19th, attempts were made to hypnotize her, with imperfect success. Suggestion, however, was made that her voice and other symptoms would improve, but without direct effect.

It was decided to try metallotherapy in this case, after the method suggested by Burq, Charcot, and others. A number of discs as large as half-dollars were made of different metals, her sensation being tested before applying them. Each day for half an hour a disc was bandaged on her arm,—she being blindfolded during the time of application and removal,—and closely watched as to sensation while the metal remained on her arm. She never felt anything at the time of applications, but one day, in preparing to apply another disc, and testing her beforehand, it was discovered that sensation had returned. Sensation has remained intact since its return.

During her stay in the hospital she has complained at various times of pain in her head, stomach, and teeth; the toothache was always on the left (sensitive) side. Three decayed teeth were extracted. Her constipation still persists, but has been met by free purgation at intervals of about a week. Though of small, slight physique, ordinary cathartic doses have usually failed to take effect.

Shortly after her admission to the hospital she was examined by Dr. C. Jay Seltzer, of the Laryngological Department, who made the following report:

V. M. has complete aphonia and slight cough, and her respirations are short and irregular. Anteriorly the lower turbinated structures are slightly turgid; the middle turbinates are enlarged and pressing on the septum, and the septum is deflected towards the left; the posterior extremities of the lower turbinated bones are hypertrophied; there is also some thickness and granular condition of the membranes of the upper pharynx with hypersecretion. A slight follicular pharyngitis exists with tonsillar hypertrophy, and the color of the larynx is deepened, but without swelling or other abnormal appearance; the cartilages move freely, and in attempting to phonate the cords approach the median line, but, not having sufficient tension, they immediately abduct. The attempt at phonation is associated with irregular abduction, and this is choreic in appearance; respiration becomes short and irregular during the effort, and also afterwards.

She has no subjective ear symptoms. *Conversation*.—*Right ear*, high pitched at seventy-five feet; *left*, high pitched at seventy-five feet; *right*, ordinary pitch at twenty-five feet; *left*, high pitched at twenty-five feet. *Watch*.—*Right*, tuning-fork, eight inches; right meatus, one-third inch; right mastoid, one-half inch; *left*, tuning-fork, eight inches; left meatus, one-third inch; left mastoid, one-half inch. The vertex is the same for both ears. The auricle and meatus are normal for both.

The membrana tympani is lustreless and opaque, relaxed, with the cone of light very faint; the left the same as the right. Sensation in both is the same, only questionably diminished; she recognizes the application of cold, but sensation is diminished in the right meatus as the auricle is approached from within. Valsalva and Politzer inflation is difficult. The membranes are freely movable by the application of the Seigle speculum.

The patient was etherized and examined by Dr. Hirst, who found acute antelexion, stenosis of the cervical canal, and a comparatively infantile uterus. The right ovary was prolapsed, enlarged, and apparently cirrhotic; the left was somewhat firm and

lower down than normal. The entire genital apparatus was undersized. The patient was told in the stupor of recovery from ether that her voice had returned, but after complete awakening she was still unable to phonate. On October 22d her menstruation returned, lasting two days. While attempting a vocal exercise, October 20th, she distinctly phonated, although very faintly, and apparently with great effort.

Dr. George M. Gould, ophthalmologist to the hospital, made a thorough examination of her eyes, and reported to Dr. Mills as follows:

The external appearance of the eyes is normal, except a certain paretic drooping of the lids. The patient raises the lids with an evident effort, and somewhat less perfectly than normal. The pupils in the ordinary daylight of a well-lit room are abnormally but equally dilated. They respond sluggishly and only partially to daylight illumination after temporary closure. To strong stimulus or concentrated artificial light they respond fairly well, but with continued illumination by the same they speedily widen, and continue in rhythmical alternating contraction and dilatation (hippus). Consensual pupillary reaction is normal.

The ophthalmoscopic details of the eye-grounds are not clearly indicative of any central lesion. There is a dirty grayish tone of both retinæ, and a slight lack of normal clear definition of the vessels against the background. The vessels are slightly subnormal in calibre, the reflexes good, the tint of the blood-columns somewhat paler than usual. The papilla of the right eye is slightly oblong, axis ninety, and there is a very unusual tortuosity and mesh-work of veins in the northeast quadrant of the disc. There is a slight scleral ring of pigmentation at the temporal side. The macular region shows granular stippling and increased pigmentation.

The disc of the left eye is somewhat irregular in contour. There is no tortuosity of vessels. The grayish haze is more pronounced than in the right, and the macular region noticeably congested.

The most noteworthy feature of both fundi is the remarkably pronounced annular reflex of the macula. I have never seen a case in which it was so sharply outlined and so startlingly distinct. It varied considerably in appearance at different examinations, sometimes appearing as a dark platform of shadowy sombre hue about the size of a disc diameter, surrounded by a clear cut ring of silvery bordering; at another time the central portion was more normal, with a brilliant white porcelain-like band at the peripheral edge.

Direct vision for form, light, and color is normal. The visual acuity of each eye is $\frac{3}{8}$, and the accommodation power is preserved.

The fields of vision, as indicated in the annexed perimetric charts, show no hemianopsia or scotomata. The fields of both eyes, however, are about equally and concentrically retracted from ten to twenty-five degrees for white light, with a corresponding diminution of the color-field. The white field of the left eye is more contracted and less uniformly concentric than that of the right. The normal order of the color-fields, as is well known, is blue, red, and green; the latter being the smaller, the red the next larger, and the blue the most extensive. In the patient there is a tendency manifested in the right eye towards reversal of the order as to the

blue and red, a part of the red field being more peripherally extended than the blue field. But in the left eye sensibility to red is more extensive all around, that to blue being uniformly narrower, with an inclination of the green response to exceed the limits of the blue in one quadrant.

A reference to the article of Mitchell and de Schweinitz (*Amer. Jour. Med. Sci.*, November, 1889) will show their reports of a number of similar cases.

II.—APOPLECTIFORM ALCOHOLIC NEURITIS; RECOVERY.

CASE II.—T. L., aged seventy-five, a peddler, admitted to the hospital September 6, 1891, had always been a hard drinker, and had been in the hospital four times. A year ago he had an attack of pain, with loss of power in the left leg, and his left arm has been weak for a long time; but he cannot state clearly whether the loss was sudden or gradual, but says that no loss of consciousness accompanied either attack of paralysis. His arteries are intensely atheromatous and the radials feel like minced bone under the fingers.

He had been constantly under the influence of alcoholic liquor for some time before admission to the hospital, and one day, as he was walking along the street, he was attacked with severe pain, accompanied by complete loss of power in his left leg from the knee down, causing him to fall. He had no pain nor paralysis elsewhere, and is certain that he did not lose consciousness.

Rough handling and careful examination failed to elicit pain elsewhere than in the left leg, and pinching and pressure above the knee caused no pain. Pressure on the popliteal space, squeezing the muscles *en masse* below the knee, pressure along the nerve-trunks of the leg and foot, and lateral squeezing of the foot, particularly at the metatarso-phalangeal articulations, caused excruciating pain and tremor, the latter subsiding in a few seconds. Knee and ankle reflexes were unchanged.

He was put upon a prescription containing antipyrin and salicylate, iodide and bromide of sodium. Dry cups were also used over the popliteal nerve and its branches. The limb was kept at perfect rest. In two weeks he left his bed much relieved, and continued to improve.

The patient was examined October 12th for discharge. The pain on pressure in the popliteal space had disappeared. On squeezing masses of muscle, and pressing over nerve-trunks below the knee, some pain was felt, but no tremor followed; moderate pain was still produced by lateral squeezing of the foot. The pain felt by the patient when at rest he described as of a "drawing" character. He had no patches of anæsthesia, but a general hyperæsthesia of the affected limbs.

On admission, the patient was suffering with acute gastritis, and was in a state of extreme nervous irritability and exhaustion. For a week he had moderate pyrexia; his heart was weak and irregular, but without organic murmurs.

He was discharged from the hospital, October 24, 1891, in fair, general condition. He said that his gait was as good as it had been before the attack, and complained of no pain in his leg or in his foot under severe pressure. The hyperæsthesia had disappeared, power had returned, and he had apparently made a perfect recovery from the neuritis.

III.—ADULT CHOREA, WITHOUT HEREDITARY HISTORY.

CASE III.—J. T., forty-eight years old, a fireman in the gas works, gives no venereal or alcoholic history, and says he has always been in good health until the

beginning of his present trouble. His only sickness was six years ago, when he had "inflammation of the bowels," and his present trouble dates from his convalescence from this affection.

He began to have twitching and jerking movements of his head, notably in a backward direction. Soon after his left shoulder, then his right, became involved in shuddering movements; the muscles of his neck and arms were then involved, but not until the chorea was of four years' standing did the movements extend to his legs and the entire body. He has grown steadily worse, with intervals of improvement under treatment. He was admitted to the hospital October 15th, and at this time the heart sounds, owing to his movements, were unattainable; his pulse was weak; his breathing irregular, but he expanded all parts of his chest and had no cough.

His appetite is fair, although he finds it difficult to eat, and mortifying to do so in the presence of others, owing to the involvement of the muscles of mastication and deglutition. His food is frequently thrown back in the pharynx and must be spit out.

He has no eye symptoms and his sight is good, but his hearing is markedly dull. His taste seems to have been perverted by constant tobacco chewing, though not otherwise altered. No objective changes in sensation have been discovered, although the patient often feels cold on a warm day, probably owing to deficient circulation.

The movements are most violent in the upper half of his body, and are worse when walking than when sitting still. These movements cease when he is asleep, but are always present when he is awake, and are aggravated by the least exertion. If he sits perfectly still for a long time, the movements are much decreased, but never stop entirely.

When at their height, the movements are a series of grotesque contortions,—the head is thrown backwards to one side; next the left shoulder and then the right is shrugged and elevated; again, the right arm is elevated then the left; the forearm is flexed and the hand and fingers slightly extended. With the arms in this general position he performs a series of movements, first with one arm then with the other; then both are flapped like wings, or at times pushed forward. These movements are exceedingly irregular and often violent.

In walking, the patient carries his feet wide apart as if balancing himself, but, though the gait is inco-ordinate, it differs from that of an ataxic patient in an analogous stage. Knee-jerk and muscle-jerk are both exaggerated on each side. In examining him for knee-jerk and muscle-jerk, his limbs often become spastic, and the directly induced jerks are followed by other jerks in the antagonistic group of muscles; or a spastic movement is liable to appear in almost any group of muscles while the tests are being made.

The bladder and rectum are not affected. The patient is often very despondent for days at a time.

A CASE OF HEMIPLEGIA ASSOCIATED WITH ATROPHY OF THE MUSCLES OF THE PARALYZED SIDE, AND ALSO WITH A PARTIAL MOTOR APHASIA, THE PATIENT HAVING A GOOD MEMORY FOR SUBSTANTIVES, BUT AN ABSOLUTE LOSS OF ALL OTHER PARTS OF SPEECH.

By F. X. DERCUM, M.D.

THE following case is placed on record because of the unusual features presented in the atrophy of the paralyzed muscles and by the aphasia. It is briefly as follows:

R. J. H., male; aged forty; married; nationality, Scotch; occupation, engineer; admitted to the Philadelphia Hospital, November 24, 1892.

Family history.—Negative.

Previous history.—Has never been sick in bed except when he had a carbuncle on his neck some six or eight years ago. Has used alcohol moderately; was married eighteen years ago; had five healthy children, one of them dying of diphtheria; wife had two miscarriages. He himself has had rheumatism and malaria at various times, and eight years ago contracted syphilis. Four years ago he had gonorrhœa. About a year ago he was rendered unconscious for several hours by smoke in a burning building.

History of present disease.—About eight months ago he began to lose power in the right arm and leg. He noticed the weakness, and for several days stopped work, and after this made an ineffectual attempt to work again, but was again obliged to desist. A night or two later he had an apoplectic stroke; lost consciousness. The next day realized that he had lost completely the use of the right arm and leg. He was also unable to talk; could not utter a single word. He was confined to his bed for some six months.

He was finally able to be about in a rolling-chair, but there was never any return of power in the paralyzed side. After several months he again recovered a little of the power of speech, and this ability has slightly increased up to the present time. On attempting to read he found he was unable to do so, and this inability persisted for some seven or eight months. At times he suffered severely from headache.

Present condition ; Motor symptoms.—There is marked hemiplegia of the right side, involving also slightly the lower third of the right face. The loss of power is almost complete, the patient being utterly unable to walk. Marked contracture is also present, the leg being rigid and extended, the forearm flexed upon the arm with marked contracture of the fingers. There is in addition marked atrophy of the deltoid, supra- and infraspinatus muscles, some wasting of the arm and forearm, and excessive wasting of the thenar and hyperthenar eminences. Fibrillary contractures can be elicited by tapping on the supra- and infraspinatus muscles. The knee-jerks are excessively exaggerated, as is also the elbow-jerk, while a blow upon the tendon of the biceps produces a marked clonus of the entire arm. The leg presents marked rigidity with tendency to extension, and there is also present some atrophy of the thigh and leg. The right thigh is $14\frac{1}{2}$ inches, left thigh $15\frac{1}{2}$ inches; the right calf 11 inches, the left calf $11\frac{1}{2}$ inches. The atrophy of the limbs is well shown in Fig. 2. There is no anæsthesia in either leg or arm. In the right hand, however, the patient makes constant errors of location, both as regards the fingers touched, and invariably refers the impression to a point one or two segments above. No loss of temperature sense. Pupils equal and respond to light. No other eye symptoms. Tongue protruded somewhat towards the right side. Vessels somewhat atheromatous. No heart murmurs. Second sound, however, accentuated. Examination of the urine negative.

His aphasia presents the following peculiarity. When asked to detail the history of his early life, he simply strings together a number of substantives, such as "school, marbles, farm, errands, engineer, Glasgow, Philadelphia." He is apparently unable to recollect any other parts of speech, with the rare exception of the words "was" and "make." The latter he used but once or twice in the course of twenty minutes' conversation. When asked to describe how an engine is to be run says: "Fire, boiler, steam."



FIG. 2.—Aphasia, hemiplegia, and atrophy of paralyzed side.



When asked to be more explicit, he uses pantomime to indicate that he cannot. When asked, "Could you show me how to run an engine?" answers, "Yes," with emphatic gesture. Further conversation with him proves that his knowledge of substantives is quite good. He correctly names all objects that are held up before him; also, with eyes closed, recognizes objects by sound, as, for instance, correctly names a watch on hearing its ticking, or a bunch of keys on hearing them shaken. Understands all that is said to him. Does not apparently comprehend readily what is written. Is able, however, to pick out readily the substantives and to pronounce them. On asking him to write with his left hand, he does so successfully as regards substantives, but is utterly unable to write words of any other part of speech. He is utterly unable to write a complete sentence. The result is the same whether I dictate a short sentence to him, or whether I give him a printed sentence to copy. He is able to write the substantives, but none of the other words.

This condition persisted with little change from week to week, until finally on February 1st he passed from under my observation. Recently, however, June 27, 1893, I have again examined him. His physical condition presents little or no change; however, the aphasia has undergone a slight improvement. He has acquired a few more verbs, such as "can" and "will." On the whole, however, the progress made has been slight.

The above case is interesting for two reasons; first, because of the unusual atrophy accompanying the hemiplegia, and also because of the peculiar character of the aphasia.

Cases of hemiplegia associated with atrophy of the paralyzed muscles are rare. It will perhaps be useless to speculate regarding the cause of this atrophy, but the fact that secondary degeneration has been so marked would suggest that the degenerative change had for some reason involved the cells of the anterior cornua of the gray matter of the cord, just as we know happens in that other chronic disease of the motor tract, amyotrophic lateral sclerosis. Regarding the initial lesion, it is very probable that it was due to a thrombus or embolus rather than to a hemorrhage. The marked and persistent character of the hemiplegia, with the absence of all recovery, together with the degeneration of the blood-vessels and the accentuation of the second sound of the heart, would suggest this as the most plausible explanation. The very

curious aphasia, in which the rather unusual condition was present of the persistence of the memory of nouns to the exclusion of all other parts of speech, may perhaps be explained as follows: It is not improbable that in the anterior portion of the third frontal convolution we have situated the memory for nouns. May it not be that in this case an embolus occluded all the branches of the middle cerebral supplying the motor area, and also the posterior portion of the third frontal convolution, while the anterior portion escaped? That not all of the motor speech centre had been destroyed is, of course, evident from the fact that the loss of words was incomplete. The fact that nouns only were retained would suggest that a portion whose exclusive function was the memorizing of this part of speech had been preserved.

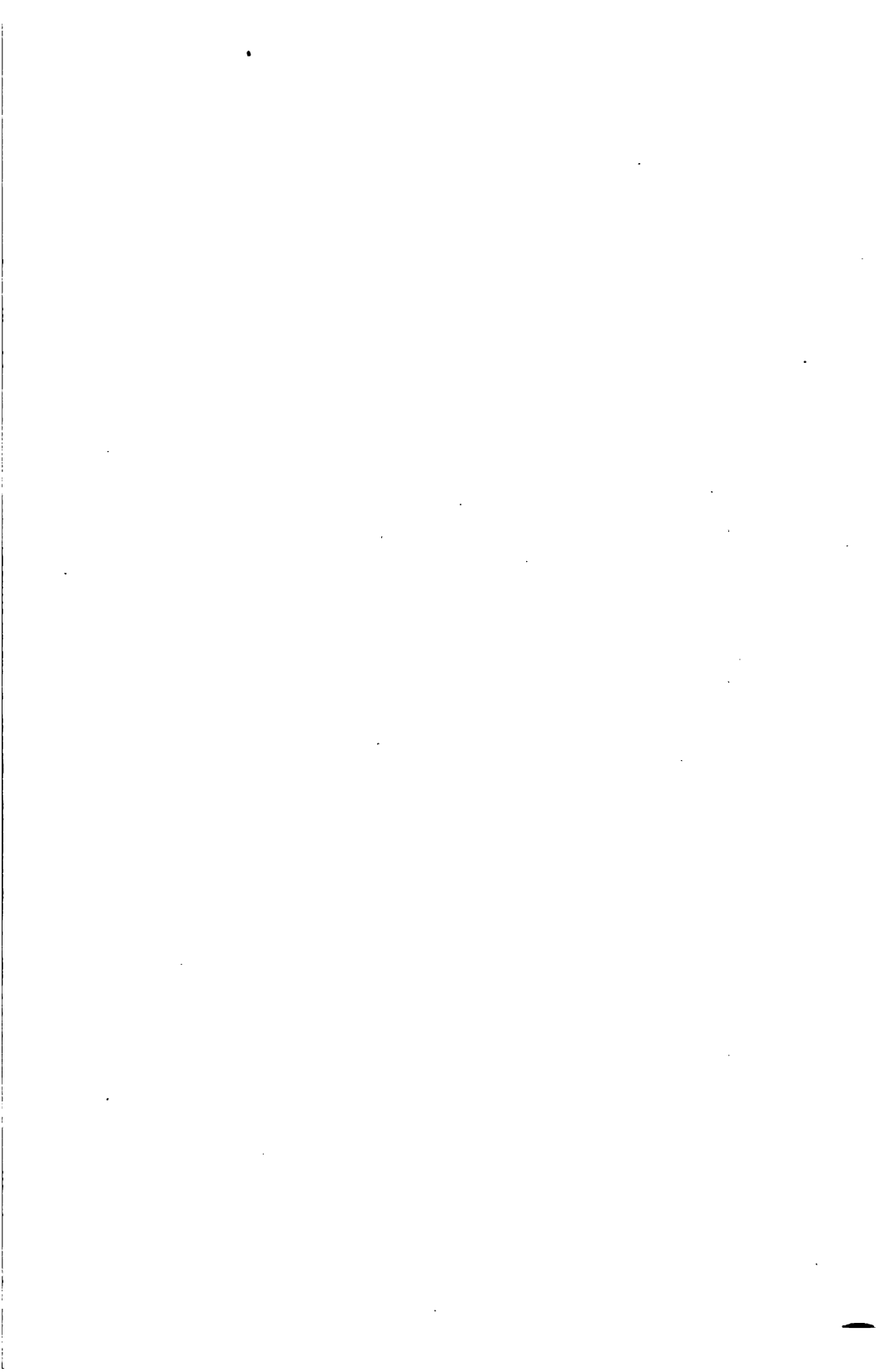




FIG. 3.—Sporadic cretinism.

A CASE OF SPORADIC CRETINISM.

BY F. X. DERCUM, M.D..

CASES of cretinism are always interesting, especially in this country, where the disease is so infrequently met with. Further, it is not improbable that the disease is, in the less typical cases, every now and then mistaken for rachitis, and *vice versa*. The study of the following case will therefore be of some value.

Cases in which the individual remains during his entire life infantile, both in size and in mental development, are very easy of recognition. Such, for instance, is the case of little "Bartie M.," who is so familiar to the visitors of the Philadelphia Hospital, and is at present under the care of my colleague, Dr. Mills. It is, however, in the cases in which a greater development, both physically and mentally, takes place, that the stunted growth is likely to be attributed to rickets.

In the case before us (Fig. 3), the past history is derived from a rather unsatisfactory source,—the patient himself. It is brief and of doubtful value.

W. H., male, gives his age at one time as thirty-five, at another as forty-seven. Says that he was born in Philadelphia, and when asked his occupation says that he has "helped a huckster." He cannot give the nativity of his father or mother. Says that both are dead; says that he has three brothers and a sister, and that they are strong and well, likewise asserting the same of himself.

Further, he tells us that he had the dropsy when a little boy, and also the chicken-pox, which he claims destroyed his left eye. States also that he has never been in the hospital before, though this is clearly the fourth time that he has made his appearance.

He was admitted to the out-wards two weeks previous to his admission to the nervous department. He stated that he had been "kicked by a horse in the stomach," that his stomach had "swelled out," and that he had been unable to pass his water. This story was doubted, as he presented absolutely no symptoms of injury, had no pain, and was apparently quite comfortable in every way.

The following physical peculiarities were noted: In stature he was decidedly dwarfed, being but four feet five inches in height. The trunk was relatively long, the limbs—more especially the thighs—being relatively short. The chest is broad

and flat, the abdomen large, relaxed, and distended. The forearms and legs are thick. The distal ends of the bones in both legs are distinctly enlarged. The hands are unusually broad and the fingers thick. The feet are broad and quite flat. His gait is peculiar in that the feet are raised with a side-wise swing, and that there is an awkward rocking to and fro as he walks. The nails also are quite broad and flat.

The head is large; the face broad, especially across the malar region; the hair is a dark brown, dense and thick, and grows low down over the forehead. The eyes are widely separated; the nose is short; the root of the nose being much depressed, while its end is broad, flattened, and much turned up. The cheek-bones are large and prominent, while the jaw is short, small, and relatively undeveloped.

The face is much wrinkled, being marked by transverse furrows across the brow, by deep creases below the eyes and over the malar bones, and to either side of the alæ of the nose and mouth. As a whole, the face looks œdematous and puffy, while its color is a dirty yellowish white. The ears are large and stand out from the head to an unusual degree.

The neck is thick, puffy, and excessively wrinkled where it joins the skin about the jaw. Above either clavicle is found a soft swelling, more marked on the right side. No thyroid gland can be felt.

The back presents in the lumbar region an excessive lordosis. In addition to the anterior curvature there is also a slight flexion to the left. The left shoulder is slightly lower than the right.

The skin as a whole is of a dirty yellowish hue, and everywhere, especially in the small of the back, in the neighborhood of the joints and over the hands, is excessively wrinkled. It feels harsh, dry, very rough, and thick. In some places, as over the hands and forehead, it feels as though loosely attached to the parts below; at others, as over the chest, abdomen, and thighs, a soft subdermal tissue appears to be present.

There is a small moustache, and the genitalia appear well developed. Inquiries as to sexual power resulted negatively.

The muscles appeared fairly developed, while the knee-jerks were slightly exaggerated.

Mentally the patient is at the level of a middle-grade idiot. Thought and apprehension are very slow. His speech is thick and likewise slow. The consonants are not distinctly enunciated, and the intonation, as a whole, resembles that of a young boy. In early life an attempt appears to have been made to teach him to read and write, but it was evidently unsuccessful.

CEREBELLAR TITUBATION, PECULIAR SPEECH, AND MENTAL DEFICIENCY; AUTOPSY SHOWING CEREBELLAR ATROPHY.

BY F. X. DERCUM, M.D.

L. H., aged forty-five, white, German, and a baker by occupation. Owing to the patient's mental condition and the peculiar difficulty of speech from which he suffered, a meagre history alone was obtainable. However, it was gathered that in June, 1888, he was in the open air and exposed to the sun, and that he had suffered a heat-stroke. Whether he had been drinking or not could not be determined. At any rate, it appears that he became unconscious, fell to the ground, and was removed to his home. Here he remained several weeks. Careful inquiry at the address that he gave failed to elicit any information.

Admitted to the hospital in 1888, he remained with but slight change in his nervous and mental symptoms until his death, which occurred in 1891.

His condition noted at various times was as follows:

His movements were very irregular, but differed from those of ordinary ataxia, in that they were decidedly jerky. The movements did not seem to lack certainty so much as they did evenness and regularity. He could button his clothes at first, but did so with jerks and starts; later he lost the power to dress himself altogether.

Could not stand with eyes closed; stood with legs widely separated, the arms extended laterally from the trunk, and the head thrown slightly back. His whole attitude was suggestive of the effort of balancing,—of the effort of maintaining his equilibrium. His gait was strikingly abnormal. It was neither the gait of ataxia nor weakness, nor was it a spastic gait. In walking, he kept his feet widely separated, and moved them forward by little, short, jerky steps. Every now and then he stopped, swayed to and fro, balanced himself anew, and then made a fresh start. When not watched he was in danger of falling, and at one time suffered from a fractured fibula in consequence of a fall. He frequently saved himself by grasping surrounding objects. His gait was staggering, and he tended to fall forward or backward rather than to either side.

There was no anæsthesia. Knee-jerk present but diminished. No nystagmus. Pupils equal and reacted well. An examination of the eye-grounds revealed the nerve hazy and deficient in color. No change in the central vessels. The conditions were those of partial optic atrophy. They became more marked with time.

Autopsy.—Calvarium rather light, somewhat translucent. Pachionian impressions average. Dura not thickened. Brain as a whole soft. Pia and arachnoid very cedematous and not adhe-

rent. Brain on removal flattens considerably. The base being uppermost, the cerebellum is shown to be exceedingly small. It seems much atrophied, the left lobe being smaller than the right. Pia at base œdematous. Here and there marked flattening of the convolutions of the cerebrum. Lateral ventricles somewhat dilated. Veins of walls of ventricles very distinct. Velum interpositum not perceptibly thickened. A small oval cyst is found running parallel and contiguous to left ascending frontal convolution at the base of the latter. Edges of cyst yellow and excavated.

Heart enlarged and flabby, pericardium normal.

Lungs normal, no adhesions.

Liver and spleen slightly congested.

Kidneys normal, somewhat fatty.

Intestines small; no change.

Large intestine shows several ulcers, which were most marked in region of sigmoid flexure and in the transverse colon. Several areas have become gangrenous.

Stomach showed signs of chronic gastritis.

Cause of death, ulcerative colitis.

Associated condition, atrophy of cerebellum.

TWO INTERESTING CASES OF IDIOCY: I. IDIOCY, WITH SPASTIC AND ATHETOID PHENOM- ENA. II. RACHITIC IDIOCY.

SERVICE OF WHARTON SINKLER, M.D.

I.—IDIOCY, WITH SPASTIC AND ATHETOID PHENOMENA.

Mary A., aged nineteen years. Born in America.

Family history.—Her father is dead; cause unknown. Her mother is living, and has had left-sided migraine for eighteen years. She has a sister and a brother living and in good health. Her nervous history is negative.

Previous history.—Her birth took place naturally, no instruments being required. She walked at the usual age, and at which time her intelligence was quite normal. At the age of eighteen months she had a fall, but recovered entirely.

When nine years of age, the patient was supposed to have menstruated, but no signs of this have since been seen. The patient had in youth measles and chicken-pox.

History of present disease.—The disease was first noticed at the age of five years. While walking, it was first noticed that the left leg dragged and that the left arm hung helpless by her side. This was sudden in its onset. Her speech, though at first normal, soon became affected. After this soon followed rigidity and contractures of muscles.

Status præsens.—Her general appearance denotes a lack of mental development. The mouth is usually open, the lower jaw being much retracted. The teeth are decayed. The patient is emotional, has a very poor memory, and, in fact, her intellectual scope is very small. She can talk, though not plainly; this being partly due to her inability to properly close the mouth, the lips consequently never being used in articulation.

The development of the head is shown in the following meas-

urements: Biparietal, twelve centimetres; bifrontal, fifteen centimetres; occipito-frontalis, eighteen centimetres.

The eyes are brown and the pupils react normally. The head is constantly being turned to the left, this being especially marked when the patient attempts to talk or to accomplish any physical action. On examination of the muscles in the cervical region, they are found to be rigid, but more markedly so in the left side.

The muscles of the legs and arms are rigid; and the arms, hands, and legs are flexed by contractures of the muscles. These may, however, all be overcome by gentle, persistent force. The hands are usually closed, and an attempt to open them by the patient results in marked athetoid movements, and, finally, the fingers of the right hand are extended completely, while those of the left hand only partially. The legs are spastic, the leg being partially flexed on the thigh and assuming the position seen in the photograph. The feet are held in the position of talipes varus.

There is a marked scoliosis to the left, most pronounced in the lumbar spine. The chest is not rachitic, and the lungs and the heart are normal. Patient can neither feed nor clothe herself, nor can she walk. Knee-jerk exaggerated on the left, absent on the right. There is no ankle-clonus, but repeated tapping of the left patella results in a clonus of the entire leg. The jerks in the arm cannot be elicited on account of the rigidity of the muscles. Sensation is normal, sphincters are controlled, special senses normal, no wasting is seen, and there are no arthropathies.

II.—RACHITIC IDIOCY.

Virnezio P., aged five years, born in Italy. Her mother is living, but is in poor health. She has a goitre which, since her youth, has been steadily growing until it now is of immense proportions. Her father died of dysentery. One sister is living and has a beginning goitre.

The previous history of the child is very meagre and difficult to obtain, on account of the ignorance of her relatives, and also because they only speak Italian. The child was born at term, normally, and without instruments. There was no injury at birth. She has never talked or walked previous to her admission to the hospital.

At the age of two years she had a convulsion, and she has had one every month for about two years.

Status præsens.—The child displays considerable intelligence, though much less than one at her age should show. She cannot talk,—or, rather, never makes any attempt to do so,—except when she is very much pleased, at which time she will utter an unintelligible sound, which is always the same.

She passes her dejecta incontinently, but will follow the nurse about until changed. She shows special affection for a few, especially those who are kind to her. She is incessantly moving about, peering into corners, and playing with chairs or whatever may come in her way, but with all seems to be mentally busy with things afar off. It is said that she makes attempts to imitate people.

The child can hear, assists in eating and in dressing, and attempts to whistle. She sleeps only at night, and an attempt to confine her to bed during the daytime causes her to cry.

The head is very flat; the lambdoid suture very marked and prominent; the occipital portion of the skull being proportionately smaller than the other bones. The forehead is low and slightly projecting forward.

The eyes are brown and the pupils react normally. The teeth are all cut, and are typically Hutchinson in type.

The chest is markedly rachitic, the beaded condition of the ribs being quite marked. The sternum is depressed and the lower ribs prominent. Knee-jerk, no clonus.

Gait is peculiar, resembling that of a tottering old woman. The coccyx is abnormally long.

ARTHROPATHY IN GENERAL PARESIS.

By JAMES HENDRIE LLOYD, A.M., M.D.

History.—To Charcot belongs the credit of having described for the first time the arthropathy of tabes. In his first paper,¹ in 1868, he recognized joint changes as among the effects of nerve-lesions, but limited his description to two classes: (1) the non-painless arthropathy of tabes, and (2) the vegetative arthritis following hemiplegia.

Long before Charcot, this vegetative arthritis—in which the joint is acutely inflamed, red, and swollen, as in rheumatism—had been recognized for the first time by Professor John K. Mitchell, of this city. In 1831² he advanced the theory of the spinal origin of rheumatism. This had been suggested to him by a rheumatoid attack in the knee in a patient with Pott's disease of the spine. It is possible that he saw in some of his cases true spinal arthropathies, while in others he may have seen instances of local tuberculous infection. In 1846, Scott Allison³ wrote a paper on arthritis in paralysis. He had observed swollen and painful joints in some hemiplegics. These joints may have been rheumatic, because hemiplegics have often an antecedent history of rheumatism, but the author thought not. These three original observers—Mitchell, Allison, and Charcot—were pioneers each in a distinct but contiguous territory. Since their time many acute observers have entered upon and possessed the land. To Charcot's original description of tabetic arthropathy some additions have been made, but nothing has been taken away. In the year following that in which Charcot's paper appeared, Ball⁴ wrote a monograph on the arthropathies of locomotion.

¹ Arch. d. Phys., 1868, Tome i. p. 161.

² American Journal of Medical Science, viii., 1831, p. 55.

³ Lancet, 1846.

⁴ Gaz. d. Hop., Paris, 1869.

tor ataxia, in which he reported eighteen cases. He published also the earliest photograph of a case, Clifford Allbutt,¹ in England, was not slow to follow with a typical case in tabes. Rosenthal,² in Vienna, published an account of a case in a patient with progressive muscular atrophy, which has special significance now that was not recognized then. Later reference will be made to this case. In Germany, however, little recognition was given to the disease, chiefly because of the criticism of Volkmann that these arthropathies are not of central nervous origin, but are traumatic. This idea is now completely exploded, and Germany in later years has contributed to this subject.³ Up to the present date, so far as I know, the literature supplies but few examples of arthropathy in general paresis; and in the cases reported the patients suffered with associated posterior sclerosis: they were, in other words, cases of the ascending type of dementia paralytica.

Occurrence and varieties of arthropathies.—In the elaborate thesis of Arnozan on trophic lesions consecutive to diseases of the nervous system this whole field is surveyed, and the following varieties of bone and joint changes are classified. (1) In cases of arrested development, especially in cerebral atrophy, or what we now call porencephalon, the bones and joints share in the failure to develop. We see contractures and a sort of fibrous ankylosis. (2) In the osteomalacia of the insane. This leads to the fractures so common in demented and chronic lunatics, among whom are general paretics. But these are not true arthropathies, nor does Arnozan refer to arthropathies as occurring in general paresis. (3) The bone-lesions of locomotor ataxia from atrophy,—the true tabetic arthropathy. Here also occur sometimes spontaneous fractures, with exuberant callus. (4) Next may be included, for convenience, the bone changes seen in scleroderma, leprosy, and hemifacial atrophy. (5) The bone-lesions following peripheral nerve-

¹ St. George's Hospital Reports, 1869.

² Diseases of Nervous System. American Translation, 1879.

³ Among recent papers those of Weizsäcker (Die Arthropathie bei Tabes, Beiträge für Klinischen Chirurgie, von Bruns, Dritter Band) and Kredel (Die Arthropathien und Spontanfracturen bei Tabes, Sammlung Klinischer Vorträge, von Volkmann, Chirurgie, 96) are especially noteworthy. A very lengthy bibliography, in which it is very evident that the French have led all others in time as well as in number and extent of their papers and monographs on this subject, accompanies Weizsäcker's paper. Of the 149 references, 90 are French, 1 Italian, 34 English, and 24 German. Among the earliest writers in English were Allbutt and Buzzard. In Germany, after Volkmann (Canstatt's Jahresber., 1868, ii. p. 391), references to the subject are not numerous before 1880. Kredel gives a still more extensive bibliography than Weizsäcker, but it includes references to spontaneous fractures. The list comprises 242 references, in which the French largely predominate.

injury. Dr. Weir Mitchell¹ says, in his well-known monograph, that wounds of nerves can develop inflammatory conditions of joints which "so precisely resemble rheumatic arthritis in their symptoms and results that no clinical skill can discriminate between the two." It may not have been the fortune of all to see quite such well-marked pseudo-rheumatic joints following nerve-injury; but some of us have observed cases of very stiff and painful shoulder-joints, with fibrous ankylosis, following injuries to the circumflex nerve, and associated with complete wasting, with reactions of degeneration, of the deltoid muscle. (6) Finally, the articular lesions, pseudo-rheumatic, closely resembling those in the last group, which follow hemiplegia and some acute diseases and injuries of the cord. Gull,² in 1856, reported the case of a man, aged thirty, who had a tumor in the upper dorsal cord, and whose symptoms simulated phthisis pulmonalis. Gradually increasing paraplegia with incontinence came on. He had painful joints, which led to the erroneous diagnosis of rheumatism. This case reminds us of Professor J. K. Mitchell's, mentioned above. In a second series of cases, Gull reported two other cases of cord-lesions with acutely rheumatic joints. One of these was traumatic. Talamon,³ in his review of this subject, made the following distinction. In locomotor ataxia the arthropathy begins in the bone, the nature of the disorder of nutrition being still unknown; while in hemiplegia, cord-lesions, and nerve-wounds there occurs an arthritis beginning in the synovial membrane. Finally, Talamon said expressly that the true tabetic arthropathies have been observed only in locomotor ataxia: "They pertain properly to this disease." In this conclusion clearly he was in error.

The arthropathy of Charcot has been found apparently in four diseases. (1) In locomotor ataxia, to which most of the literature refers. (2) In syringomyelia. This has been a comparatively recent recognition. Rosenthal said in 1870 that he had seen in progressive muscular atrophy hypertrophy of bones with concentric osseous atrophy and arthropathies. In the case of a woman he saw the shoulder the size of a child's head. In syringomyelia the shoulder-joint especially is likely to be the seat of arthropathy, while muscular atrophy of the Aran-Duchenne type is a common

¹ *Injuries of Nerves*. Philadelphia, 1872.

² *Guy's Hospital Reports*. Third Series, 1856, p. 145.

³ *Lésions osseuses et articulaires liées aux maladies du syst. nerv., Rev. Mensuelle*, 1878.

symptom of this degeneration of the cord. It is probable that Rosenthal's case was one of gliomatosis of the cord. Bruhl,¹ in his recent monograph, describes the arthropathy of syringomyelia as showing an "augmentation of the bony surfaces," and sometimes even foreign bodies of bone. It is seen most frequently in the upper limb, as in the fingers, shoulders, and elbow. He refers to a case of Berby's,² in which an immense swelling of the elbow was seen, with great bony enlargements corresponding to the epicondyle and epitrochlear. One of these was movable. Craquements were heard, and the lower end of the humerus presented rugosities. Bruhl finally attributes scoliosis, so common in syringomyelia, to arthropathies of the vertebræ. In a case reported recently by the writer³ the ankle was the seat of the joint change. The arthropathy of syringomyelia is evidently identical with that of tabes. (3) In only one case does there appear to be a record of arthropathy in sclerosis in plaques. This was in the person of an American physician, Dr. Pennock, referred to by Bourneville and Guerard.⁴ In this case there was disseminated sclerosis not involving the posterior columns. There was swelling between the knee and the foot. They instance another case (reported by Valentiner) in which there was scoliosis. The descriptions in these cases are not very exact.⁵ (4) Finally, Charcot's joints occur in general paresis. In all cases either there was observed posterior sclerosis, or there was good cause to suspect it. Dr. J. C. Shaw,⁶ in 1883, reported four

¹ Contribution à l'étude de la Syringomyélie. Paris, 1890.

² Bull. de la Soc. Clinique, 1885.

³ Univ. Med. Mag., March, 1893.

⁴ De la Sclérose en plaques dis., p. 76.

⁵ The only case of possibly insular sclerosis with arthropathy that has come to my notice is the following: E. T., aged thirty-three, laborer, was admitted to the nervous wards under my care about two years ago. He said that he had injured the right knee some years before. After the accident, the knee began to swell. Symptoms of disease of the nervous system began soon after. His own account is not very accurate, so that the exact relation and sequence of the joint disorder and nerve-symptoms cannot be stated. He denied syphilis. His condition on admission was as follows: He had intention-tremor, especially in the right hand and arm; also tremor in the tongue and face, and fairly well-marked nystagmus. He had defective, drawling speech. The knee-jerks were very active. There was no pain or anæsthesia. The mental faculties were unaffected, except some failure of memory and slight inattentiveness. The knee was like a spinal arthropathy. It was swollen and painless, but neither red, hot, nor inflamed. It grated loudly on rubbing the bony surfaces together, and evidently contained foreign bodies of bone.

This case is of special interest here because it forms the subject of Dr. Hearn's paper in this volume of reports, p. 54. The patient was transferred to the surgical wards, where Dr. Hearn excised many of these foreign bodies. A recent examination (one year after the operation) shows that the man's nervous symptoms are unchanged, except that the nystagmus is less marked. The knee has been much improved by the operation.

⁶ Arthropathies in general paralysis of the insane. Arch. of Med., N. Y., 1883, ix, 144-152.

cases of arthropathy in general paretics. Two at least of these were typical cases. In one case both hips were involved; an autopsy showed absorption of the heads of the bones and deposits below the trochanters. Verneuil¹ relates an instance of a gibbosity involving three vertebræ in the dorsal region in a general paretic. There was no pus nor evidence of spinal caries.

Frequency.—Weizsäcker gives the frequency of arthropathy in the several joints as follows:

	Right.	Left.	Total.
Knee	38	40	78
Hip	15	16	31
Elbow	4	6	10
Shoulder	8	13	21
Tarsus (Fusswurzel)	8	5	13
Wrist	1	1	2
Ankle (Fussgelenk)	4	5	9
Maxillary joint	1	1	2
	79	87	166

Etiology.—By common consent these arthropathies are held now to be trophic lesions. Volkmann's opinion that they are traumatic has never been accepted outside of Germany. Strümpell's theory that they are syphilitic, and that of some English writers that they are rheumatic, are rejected likewise now very generally. Buzzard² formulated a fanciful theory that, as arthropathies coincide, according to him, with gastric and laryngeal crises, they depend probably upon an invasion of the medulla oblongata, in which, to fortify his theory, he placed a trophic centre, purely hypothetical, for the bones and joints. Others have sought to associate these joint-changes with a peripheral neuritis. These theories have no substantial bases. Finally, Charcot and Joffroy³ recorded an observation which pointed to the anterior horn as the true seat of the central lesion upon which spinal arthropathy depends. They observed the case of a woman who had had locomotor ataxia for ten years, and who developed a large arthropathy of the left shoulder. Post-mortem a typical joint was found, the head of the humerus having disappeared. The cord presented a typical posterior sclerosis. The left anterior horn in the cervical region showed a remarkable lesion. The horn was atrophied, and many cells were gone, especially in the posterior external group. The remainder of the

¹ Bull. et Mém. Soc. de Chir., 1876, N. S., ii. 711-713.

² Diseases of Nervous System, p. 214.

³ Arch. d. Phys. Norm. et Path., 1870, iii. 306-309.

cord did not show any lesion in the anterior horns. A large illustration shows this change perfectly. This view seems to be sustained by the fact that true arthropathy of the tabetic type has been found usually in diseases in which the anterior horns are involved, as in syringomyelia, and possibly in insular sclerosis. In paretic dementia the condition of the anterior horns has not always been studied, the brain-lesion often overshadowing the cord-lesions. On the other hand, Talamon records the fact that in several autopsies in cases of spinal arthropathies no lesion of the anterior horns was found.

Anatomy.—Marie¹ in his recent treatise makes two classes of tabetic arthropathies,—(1) The atrophic type; (2) The hypertrophic type. The former is that most commonly described; it presents a more or less complete destruction of the cartilages and ends of the bones. In the hip, the head and the neck of the femur disappear sometimes entirely. In the latter, or hypertrophic type, to which our case belongs, one observes a state somewhat like that in arthritis deformans. Bony swellings and stalactites are found. Sometimes detached bony masses, veritable foreign bodies, are present; sometimes these masses hang by pedicles. Osteo-cartilaginous masses are seen, and the synovial fringes are thickened. The capsule may be involved, wasted, and holding bony plaques. It is common in both these types for the capsule to be relaxed, softened, dilated, and sometimes opened. The cartilages, ligaments, and synovial membranes are more or less involved in the destructive process, the ends of the bones being denuded. The effusion is usually serous, transparent, and yellow; but it has been known to contain pus. Marie's explanation of the coexistence of these two diverse types in the same disease, and often in the same patient, is plausible and even convincing. It is simply a question of the particular joint involved. In some joints the atrophic, in others the hypertrophic, type prevails. He quotes Kredel, who has observed that the hip and shoulder have a special tendency to the atrophic, while the knee is equally disposed to the hypertrophic process. The same subject may present the two types, as the patient whose case I report, who had immense hypertrophic arthropathies of the knees, with a fracture of the olecranon, and possibly some wasting in the right elbow.

¹ Leçons sur les Maladies de la Moelle.

Some observers, Talamon among them, deny hypertrophy. The process, for them, is always an atrophy and a wearing away of soft and hard parts under friction. I shall refer again to this subject when I describe the case of my patient, in the ends of whose femurs bony masses existed. Among those who record similar cases is Hutchinson.¹ A man had had very severe fulgurant pains for twenty-five years, but continued able to walk well. The right knee filled with fluid, "the synovial pouch passing up the anterior third of his femur." There were "bony outgrowths" and "irregular thickenings" in both tibia and femur. Bruhl refers to hyperostoses in the arthropathies of syringomyelia.

Clinical history.—The clinical history of spinal arthropathy is about as follows: The *début* is often sudden. In the morning, it may be, the patient notices that the joint is swollen. In a few days the whole limb is involved. This swelling or puffiness is hard and brawny, not showing very clearly the ordinary signs of œdema—not pitting readily, for instance. By this time the joint is the seat of effusion. The general swelling may disappear in from a few days to an indefinitely longer period; but the joint retains its effusion. Soon craquements or grating sounds are heard; these are caused by denudation of the articular surfaces. The dropsy disappears, but not always entirely, leaving an extreme mobility of the joint. The utility of the joint, even after deformity has become great, is not always lost; thus often the patient can walk when the knees are badly involved. Charcot taught that these arthropathies are always precocious, *i.e.*, at the initial period of the spinal disease: they occur between the prodromal period and the period of motor inco-ordination. This rule probably has many exceptions. In Hutchinson's case this period of fulgurant pains lasted for twenty-five years, and then the joint became involved just with the beginning of inco-ordination. This fact disproves Volkmann's statement that the joint-lesion is traumatic, due to the inco-ordination. As a rule, to which there are very few exceptions, there is no pain, no heat, no redness in the joint. In the benign form all the symptoms may disappear and the joint recover entirely. In the malign form, grave deformity results with atrophy, or sometimes with irregular bony outgrowths, dislocations, or impairment; in spite of which, however, the patient continues to have some use of the limb. The joints are involved

¹ Archives of Surgery, July, 1892, p. 41.

in frequency, as follows: The knee, hip, shoulder, ankle, elbow, wrist. The small joints are attacked sometimes. My case is as follows:

Jacob D., aged thirty-eight, white, single, was admitted to the wards in July. His history was obtained from relatives and is very meagre. He had suffered for some years with pains in the legs, which had been called rheumatic; otherwise he was apparently healthy up to one year and a half before admission, when he had a swelling of his knees. At this time no mental symptoms were observed. Six months before admission he began to have mental symptoms. He had delusions of persecution; he became silly and weak; then he had a remission, and was much better; then he relapsed, and was sent to the hospital. Drawling speech began three months before his admission. He had had no convulsions. There was no history of syphilis.

His condition on admission was as follows: He was demented and dull, answering questions imperfectly. He had a drawling speech and some unsteadiness of the facial muscles. There was a slight nystagmus. No intention-tremor. No delusions could be demonstrated at first. The knee-jerks appeared to be abolished, but the knees were so swollen and deformed that it was difficult to test them. By tapping vigorously, a slight myotatic reflex was caused in the quadriceps. Both knee-joints were enlarged enormously. (See photograph.) Grating sounds could be heard in them easily. The anterior ends of the condyles of the femurs were enlarged, forming prominent bosses. Sensory tests were negative because of the patient's fatuous state. The pupils acted on accommodation, but did not react to light—the Argyll-Robertson phenomena. Hearing was good. The right elbow was deformed by an old ununited fracture of the olecranon, but the man had fairly good use of the joint. The detached olecranon was easily movable and somewhat enlarged. The left forearm presented an extensive scar, the result of an old injury. The ulnar nerve had been cut across many years before, and there was the characteristic wasting and "main-on-griffe."

A few days after admission the patient had a maniacal episode—so characteristic of paresis—which required that he be strapped in bed. He was very violent in his delirium, fighting and resisting, but showing no intelligence. After this episode he gave evidence of a grandiose delusional state. He was more demented, and talked in a rambling and incoherent way about finding an immense piece of silver and large sums of money. He claimed also that he had several wives. His speech became still more drawling and unsteady. Because of the deformity of his knees, it could never be tested satisfactorily whether he swayed with his eyes shut. He managed to walk about. In the course of a few weeks incontinence of urine set in.

The joints grew more deformed. The patellæ were flattened and disfigured, and increased in diameter. The bosses on the condyles were very prominent. No staphylococci could be determined. Grating sounds were always readily obtained. The joints were painless and free from heat or redness. There was evidently increase of fluid within them. No marked œdema was seen around the joints, but still the skin had a hard and brawny feeling. There was increased lateral movement (Fig. 4).

The electrical tests were of great interest. Very strong currents, both of faradism and galvanism, failed almost completely to cause contractions in the muscles of the thighs and legs. The only exception was in the peroneal group of the right leg, in which the reaction was normal. I think the reason for this failure was in the fact that the brawny and somewhat œdematous skin resisted the passage of the currents.

An examination of the eye-grounds by Dr. Gould gave negative results.

Early in October the patient began to have retention of urine. This required the use of the catheter twice a day. Although every precaution was taken against sepsis, the urine soon became alkaline and contained pus. The bladder was washed out with a solution of boracic acid daily. On the 16th the man had a severe chill, followed by a rapid rise in temperature. The chill was repeated daily and the patient's condition became grave rapidly. A diagnosis of infectious cystitis and pyelitis was made. He died on the 20th with œdema of the lungs.

The post-mortem findings were as follows:

Brain.—The dura was adherent to both the skull and the membranes. It was thickened. The longitudinal sinus was filled with a black clot. There was sub-arachnoid œdema. The frontal lobes especially were abnormal, and in marked contrast with the rest of the brain. They were blanched, the arachnoid somewhat opaque, the convolutions evidently shrunken. The pia mater stripped readily from the brain in the Rolandic and parietal regions of the left hemisphere. But on the frontal lobe it adhered, especially over the exterior and extreme frontal region and along the gyrus marginatus. On the right hemisphere this condition was more marked and more extensive. Almost all these convolutions tore when the pia was stripped from them. The perivascular sheaths were filled with a white opaque fluid. At the base of the brain adhesions were very extensive, so much so that it was difficult to open up the Sylvian fissure, the opposing surfaces being agglutinated together. The pia-arachnoid was thickened and opaque, and strongly adherent in other regions of the base. The large blood-vessels at the base were normal. On laying open the brain-axis the lateral ventricles were found to be dilated and full of a clear fluid in excess. The ependyma was not thickened but normal in appearance. The aqueduct of Sylvius was pervious. The walls of the third ventricle were agglutinated together. The basal ganglia, internal capsules, mid-brain, pons, medulla, and cerebellum were normal to naked-eye inspection.

DESCRIPTION OF CORD.

The cord presents the type of degeneration seen usually in forms of cerebro-spinal sclerosis. (See Fig. 5.) It is of interest to note, first, that it does not present a typical posterior sclerosis. It rather combines two system lesions,—(1) Partial posterior sclerosis, and (2) sclerosis of the motor tracts from one hemisphere; *i.e.*, the crossed pyramidal tract on the right side and part of the direct pyramidal tract on the left side.

First. The posterior sclerosis is not distributed symmetrically, as in locomotor ataxia, to the lesion of which disease, indeed, it presents but a partial resemblance. A large sclerosed patch occupies the anterior end of the postero-median column and the contiguous part of the postero-external column of the left side, and, less extensively, the anterior part of the median column of the right side. The postero-external column of the right side escapes almost

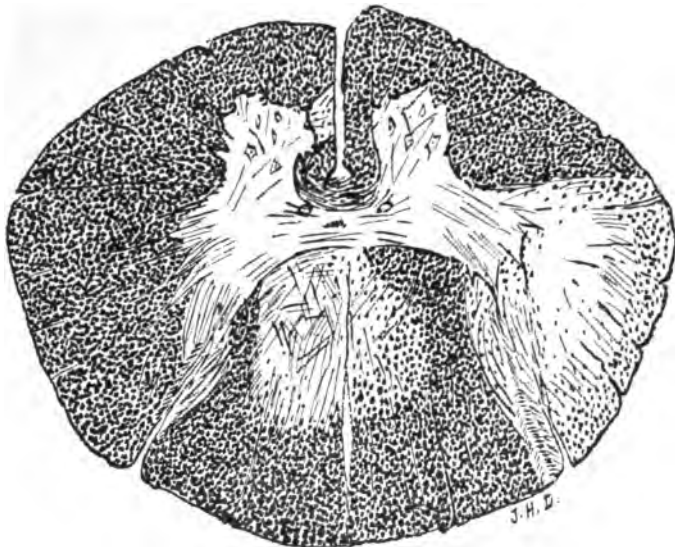


FIG. 4.—General paresis, with arthropathies.



completely. This large patch is sharply demarcated, except on the right side, where it shades into normal structure. The posterior parts of these columns of Goll and Burdach are normal. The posterior root-zones practically escape.

FIG. 5.



Spinal cord (dorsal region), from a case of general paresis with arthropathies.

Second. The motor tracts from the left hemisphere alone are involved, and these not typically. The sclerosed area in the right lateral column is not exactly coextensive with the crossed pyramidal tract, but is more extensive. At its periphery a line of less degenerated fibres marks the position of the direct cerebellar tract. The region of the direct pyramidal tract on the left side (to the inner side of the anterior horn) presents a curious fan-shaped area of degeneration, sharply demarcated, and extending from the horn to the anterior median fissure. It is not coextensive with the direct pyramidal tract.

The multipolar cells of the anterior horns in this region of the cord do not present very marked changes. They are not numerous, for they never are numerous in the mid-dorsal region. It is to be regretted that a section from the lumbar enlargement was not prepared, so that the state of these multipolar cells in that region could be ascertained; but by an oversight this was not

done. According to some French observers these arthropathies are caused by a degeneration of the large multipolar cells, whose function is trophic for the bones and joints as well as for the muscles.

The central canal is not patulous, but it is marked by a small group of large cells.

Finally, it may be repeated, that this cord presents the type seen in cerebro-spinal sclerosis, *i.e.*, its lesions are not truly systemic, but rather irregularly scattered. Yet clinically the case was one of general paresis, quite well-marked by delusions, progressive dementia, maniacal episodes, and speech- and eye-defects. The brain also presented the lesions of general paresis, and not an insular sclerosis. It seems probable that in some forms of general paresis (which may be called a special type of cerebro-spinal sclerosis) the cord may present this type of irregularly distributed lesions, for this type of a more or less irregularly distributed disease-process is characteristic of the lesions in the brain. It cannot be said that a direct connection is apparent in this case between the cord-lesions and the arthropathies, but this connection existed probably by way of the nerve-roots. The nerves were not examined.

*The knee-joints.*¹—The *right* joint was as follows: The synovial membrane in front was of steel-gray color, mottled with blue patches, and covered with numerous small miliary calcareous nodules. The anterior edges of the condyles of the femur were greatly hypertrophied in nodular masses or rugosities. These formed bosses extending upwards and outwards about two centimetres beyond the edge of the condyle. In the anterior notch between the condyles was a triangular mass of nodules embedded in tissue and freely movable. These nodules were of stony hardness. Over the articular surface of the right condyle there was left the lining membrane of the joint, considerably thickened and rough in some places, in others thin, and presenting about the centre an eroded patch. Over the surface of the left condyle the lining membrane was absent, and the bone was worn and eroded, especially towards the periphery. There was a series of small eroded patches with nodules running along the outer border to the posterior extremity of the condyle. In brief, most of the soft structures of the joint showed destructive changes. The semi-lunar cartilages were much worn and eroded, and easily displaced. The inner surface of the capsular ligament showed some pedunculated masses. The crucial ligaments were wasted apparently, but still held firmly. The end of the tibia was covered with thin, worn, and eroded membrane; part of the surface of the bone was bare. The joint contained a green, thick, opaque fluid. The patella was quite deformed. It was thin and flattened, with rugous edges. The under surface was covered with shreds of membrane. The capsular ligament was much distended,

¹ Very accurate plaster casts were made of the joints by Dr. H. W. Cattell, Assistant Pathologist to the hospital, and are now in the museum.

and the joint cavity extended to an abnormal limit up on the front of the femur. The *left* knee-joint was rather larger and more distended than the right. The same general characteristics were noted,—distended capsule, eroded membranes, nodular, pedunculated formations, and bony bosses on the anterior edges of the condyles.

Kidneys and bladder.—The kidneys were large; the capsules adherent. The pelvis of the right kidney was dilated enormously and filled with a purulent fluid. The ureters were dilated. The bladder was thickened and presented evidence of a recent catarrhal process.

Acknowledgments are due to Dr. H. D. Beyea and Dr. Joseph Sailer, resident physicians, for valuable clinical work on this case; and to Dr. David Riesman for preparing the sections for the microscope.

A STUDY OF NINETEEN CASES OF LOCOMOTOR ATAXIA.

SERVICES OF DR. JAMES HENDRIE LLOYD AND DR. WHARTON
SINKLER.

BY JOHN MILTON ROBINSON, M.D., RESIDENT PHYSICIAN.

THERE are in the neurological wards of the hospital nineteen cases which have been diagnosed as locomotor ataxia. Of these five are women; and in this particular the wards may be considered unusually well off, for, although, according to the statistics of Eulenburg, this disease attacks males in the proportion of one hundred and twenty-eight to twenty-one females, Gowers¹ claims that it occurs only in the proportion of one to ten; and even such a famous observer as Duchenne² saw but four, and Trousseau but three cases of locomotor ataxia in women.

During my service in this department of the hospital I have attempted a careful study of these cases, a portion of the results of which, through the courtesy of Drs. Lloyd and Sinkler, I am permitted to report.

The following statistics are based upon the observation of nineteen cases, unless otherwise indicated:

1. History of syphilis	3
2. History of spinal injury	4
3. History of exposure to cold and wet	7
4. History of alcoholic excesses (about)	7
5. History of venereal excesses (probably more)	2
6. Knee-jerk present, but much diminished	1
7. Exaggerated superficial reflexes	4
8. Qualitative alteration in electrical reaction	1
9. Diminished faradic excitability (14 cases)	11
10. Diminished galvanic excitability (14 cases)	11
11. Much ataxia in the hands	4
12. Static ataxia	5(?)

¹ Gowers, Diseases of the Nervous System, vol. ii. p. 399.

² Trousseau, Clinical Lectures, 1882.

13. Severe paroxysms of pain	15
14. Various paræsthesiæ, as numbness, formication, etc.	18
15. Girdle sensation around the abdomen	17
16. Girdle sensation around the legs	4
17. Girdle sensation around the shoulders	1
18. "Gastric crisis"	3
19. "Cardiac crisis"	1
20. "Laryngeal crisis"	1
21. Sudden vertigo	8
22. Partial iridoplegia (including 23)	18
23. "Argyll-Robertson" pupil	15
24. Myosis	8
25. Unequal pupils	4
26. Uneven contour of the pupil	2
27. Transient ptosis	8
28. Transient diplopia	6
29. Nystagmus	2
30. Slight atrophic changes in the optic nerve	4
31. Contraction of the field of vision	4(?)
32. Limitation of the color-field (10 cases)	5
33. Partial achromatopsia	1
34. Anosmia	1
35. Deafness	3
36. Sexual involvement (probably more)	7
37. Partial incontinence of urine	12
38. Complete incontinence of urine	1
39. Acute retention (occurring at intervals)	1
40. Urine, alkaline and turbid (18 cases)	16
41. Urine containing a trace of albumen	6
42. Irregularity of the pulse (18 cases)	2
43. Acceleration of the pulse (above 85) (18 cases)	14
44. Valvular murmur (mitral)	1
45. Unilateral (?) hyperidrosis	1
46. Tabetic arthropathies	2
47. Perforating ulcer of the foot	1
48. Constipation	13
49. Tenderness along the spine	2
50. Anæsthesia	16

For several years there has been no colored patient with locomotor ataxia, but there are two negroes affected with disseminated sclerosis now in the wards.

While the recent statistics of Erb, Fournier, and other European observers would seem to give syphilis the precedence over all other etiological factors in the production of this disease, and while it is true that the likelihood of syphilis often stands in reverse ratio to the veracity of the patient, yet in only three cases of this series was I able to obtain either any evidence or history

of specific disease. It is worthy of note, however, that locomotor ataxia succeeds with greater frequency to the mild than to the severe forms of syphilitic infection.¹

It will be seen that there were seven cases in which the disease was attributed to sudden or continual exposure. One man was a puddler, another a fireman in a gas-factory, and, of course, both were exposed to extreme changes of temperature. Three were day-laborers; one, a sailor, who was suddenly drenched with a bucket of cold water when greatly heated, and soon after developed symptoms of multiple neuritis, and now, two years later, is admitted to the hospital a typical ataxic.²

It is very probable that many of these cases commenced as cases of neuritis, or as mild forms of meningitis or myelitis, and the result has been a "secondary tabes."³ In two cases, at least, the earlier symptoms followed an injury to the back, and one man presents marked kyphosis. It may be only a coincidence that two patients were by trade tobacconists. I can only refer to the above statistics when the question of alcoholic and venereal excess is suggested, for its influence in producing these cases of tabes, which I am reporting, is difficult to determine; neither have I been able to find any patient who could give a family history of neurotic taint.

The majority of these tabetic patients have from time to time paroxysms of the sharp lancinating pains which are so characteristic of this disease, and I can corroborate the statement that these attacks are likely to be much worse in cold and wet weather. In connection with this I have found that the ordinary antirheumatic remedies, such as the salicylates,⁴ salol, etc., are of much use in mitigating the severity of these pains, especially when given in combination with antipyrine or phenacetine.

But the wards have also furnished during the past winter many of the more interesting sensory phenomena which occur in the clinical history of this disease. The following instance is worthy of mention: A woman, who for a long period had shown many evidences of tabes, suddenly began to have severe abdominal and gastric pain, at first of a sharp, cutting character, but later consisting of only "a dull boring sensation in the stomach." This

¹ Fournier, *L'ataxie locomotrice d'origine syphilitique*. Gaz. Med., 1876, Nr. 53.

² Lloyd, *Forms of Pseudo-tabes*. Medical News, April 2, 1892.

³ Gowers, *Diseases of the Nervous System*, vol. ii. p. 401.

⁴ Althaus has recommended the use of twenty-grain doses of salicylate of soda. *British Medical Journal*, November 9, 1878.

was soon followed by excessive vomiting, accompanied by much nausea and great prostration. The vomited matter consisted of small quantities of bile-stained liquid, which did not, I believe, contain any acids of fermentation, as butyric or acetic. The pain seemed to be relieved by pressure; there was no rise of temperature or diarrhœa, and at the end of thirty-six hours the attack so rapidly subsided that I concluded that what I had at first taken for an attack of acute indigestion was in reality a "gastric crisis." Yet there is, I think, "a tendency to over-elaborate this terminology" and call many of the common visceral disturbances by this name. Gastric disorders are very frequent among the tabetics in our wards, and many attacks which depend upon the condition of the stomach and its contents might easily be mistaken for "gastric crises." The points that are of most use in distinguishing the gastralgic nature of the case are these: 1. The sharp and lancinating character of the pain. Some authorities¹ claim the visceral attacks always accompany or follow the radiating pains in the extremities. But I have noted instances in which the gastralgia appeared to substitute the latter. 2. The rapidity of the onset of the attack and the suddenness of its disappearance. 3. The fact that pressure will often relieve the pain. 4. The character of the vomited matter, which consists of small quantities of bile-stained watery mucus, without undigested food or such acids as acetic or butyric, which would indicate only an acute attack occurring in course of chronic dyspepsia. 5. The occurrence of unusual malaise and prostration. In one instance I found that the mucus that had been vomited was flecked with blood. Antipyrine and such drugs have not appeared to relieve these visceral paroxysms.

In the case of the woman which I have above referred to, there occurred also paroxysms of pain in the præcordia, which seemed somewhat allied to angina pectoris. The patient described the pains as commencing in the lower extremities, and from there shooting upward into the chest and gathering about her heart, then seemingly to "sprinkle" through her neck and arms and cause her very fingers to tingle. These paroxysms always came on suddenly, and so frightened her that she was unable to speak, and then they would as suddenly disappear. In another patient an occurrence, which was reported to me by the night-nurse, seemed to partake of the nature of a laryngeal crisis. The man had been

¹ Ross, *Diseases of the Nervous System*, p. 518.

complaining during the evening of severe pain in the chest and back. During the night he suddenly awoke in intense dyspnœa, with pains radiating through his neck; his face became cyanotic, and he seemed unable to swallow. The attack disappeared in a few minutes without ill result. In another instance the pains often localized themselves about the anus; or again, there was a case in which there were severe neuralgic paroxysms in the left eyeball, and these were accompanied by a suspicious pallor of the optic disc.

Such subjective sensations as numbness, tingling, hyperæsthesia, and girdle pain around the waist and just below the knees are all common, but they have for the most part occurred prior to the admission of the patients to the hospital. I have mapped out anæsthetic areas in most of these cases, and I find that they most frequently occur below the knee and are often transient. In one instance I discovered a spot of complete anæsthesia over the left eye and sensation much retarded on the same side of the face. There was no history of facial palsy nor neuritis, but the patient's symptoms had been much aggravated by a recent attack of epidemic influenza. Loss of muscular and thermic sense usually accompanied the anæsthesia. In one patient there is analgesia so widespread that hypodermic injections can be given in either the arm or leg without causing any discomfort. In two or three cases hyperæsthesia over the back and much tenderness along the spine make it probable that considerable chronic meningitis accompanies the posterior sclerosis.

Some disturbance in the innervation of the iris has been determined in every case of this series. The "Argyll-Robertson" symptom was usually present. Under this head I have included one or two instances in which, though the pupillary reflex could not be detected after the sudden exposure of the eye to candle- or daylight, it was faintly perceptible when a stronger light was quickly focused, by means of a lens of about twelve dioptries, upon the eye in the dark-room. But even when this occurred, the normal oscillation of the pupil which follows its sudden exposure to light was absent. In several instances the contour of the pupil was slightly uneven, but this was not due to optic adhesions which might have pointed to previous syphilis.

Three cases presented extreme myosis, and there were five others in which the pupils were small, but not of the "pin-point"

variety. It is generally conceded that the latter are due to destruction of the sympathetic fibres emanating from the cilio-spinal region of the cord, while the former depend more upon irritation of that portion of the third nerve nucleus from which the nerve bundles which supply the circular fibres of the iris proceed.¹ But in these cases of myosis I have not been able to discover any other evidence of sympathetic nerve disturbance, nor any symptoms pointing towards the involvement of the cervical or upper dorsal cord. Besides this, if the slighter degrees of myosis are of spinal origin, dilatation of the pupil, due to irritation, would be likely to precede the contraction; but few cases of mydriosis occurring in *tabes dorsalis* have been reported.

There are four cases in the wards which show beginning atrophic changes in the optic discs, but there are no patients whose vision has to any great extent been interfered with. There are several cases showing limitation of the color-field, and this has been noticeable especially with regard to green.² But I have not been able to find any patient with decided color-blindness.

There are three cases of slight ptosis, all in women. Diplopia seems to be more common in the evening, at which time "the gas-lights look double." This, I think, depends upon fatigue of the ocular muscles, resulting from the strain to which the eyes have been subject during the day.

While there are several instances of deafness among the tabetics in our wards, only two cases appear to depend upon disorder of the internal ear. In one of these the deafness was supposed to have followed typhoid fever, but it has grown much worse during the progress of the spinal disease.

A much rarer case is one in which there is complete anosmia, without apparent disturbance of the sense of taste. There has been no disease of the nose to account for this condition, which has been present only since the man began to show symptoms of ataxia. He is totally unable to detect such a pungent odor as that of ammonia, and even such an old acquaintance as "*spiritus frumenti*" passes unrecognized.

Four of the nineteen cases are so far advanced as not to be able to walk. There is considerable muscular wasting in many of the patients, which, I think, is to be accounted for by long disuse of

¹ Byron Bramwell, *Diseases of the Spinal Cord*.

² Spitzka, in *Pepper's System*, says that limitation of the green color-field is quite common.

the limbs. The trend of modern opinion would point towards involvement of the peripheral nerves as the more likely cause of the diminution of electrical excitability.

Some disorder of the bladder has been noted in nearly every case of this series. Acute retention is not common, but one patient under my care suddenly developed this trouble, and I was obliged to catheterize him regularly for two weeks, until he died. The more common occurrence is a constant dribbling or inability to hold the urine for any length of time. Of the five women affected with tabes only two suffer from incontinence, and these but to a slight degree. There is one patient in the male wards who is not cognizant of the passage of urine, owing to the anæsthesia of the urethra.

Like many of the symptoms of posterior sclerosis, the disorders of the bladder and bowels vary at different periods. I do not think that women are as prone to the genito-urinary disturbances of this disease as are men.

In all but two cases an examination of the urine showed that it was both alkaline and turbid. The latter condition was chiefly due to mucus, but pus-corpuseles, and crystals of phosphates, urates, etc., may often be detected by the microscope. After carefully filtering the urine, a trace of albumen was found in six out of seventeen specimens examined. I have never found any renal tube casts in these cases, and in one instance the albuminuria appeared to be transient. Two or three patients denied any tendency to cystic disorder, but their urine was of the usual alkaline and cloudy character. Gowers lays great stress upon the necessity for the use of the catheter in all chronic diseases of the spinal cord; and there is no doubt that, although in many cases the patients may think that they have completely emptied the bladder, either from atony of that organ or from the anæsthesia of the mucous membrane, there is still considerable residual accumulation which is likely to lead from cystitis to pyelo-nephritis, and death. I have noticed that the turbidity of the urine will often serve as an index to the general condition of the patient; and occasional irrigation of the bladder, with some mild antiseptic solution, will frequently give much relief to these poor unfortunates.

I believe that Eulenburg was the first to call attention to the acceleration of the pulse in locomotor ataxia. Charcot,¹ in his

¹ Leçons sur les maladies du système nerveux.

earlier lectures at La Salpêtrière, says that the pulse usually ranges between ninety and one hundred, and is frequently dicrotic. But there are not many references to this subject in medical literature. Gowers, for example, makes no allusion to the subject whatever.

I have taken full sphygmographic tracings, but have failed to detect any tendency to dicrotism in my cases; but the pulse-rate was in the majority of instances above eighty-five, and in four cases it exceeded one hundred, even when the patients were perfectly quiet. In two instances only was the pulse irregular. In one there was a loud mitral murmur, but in the others the heart-sounds were clear and distinct.

Further than this, I have noted an unusual acceleration of the pulse when any attempt at muscular effort was made. For example, after one patient had walked across the ward the pulse was raised from one hundred to one hundred and forty-five; and in another instance the effort required in taking only three or four steps increased the pulse-rate thirty or forty beats per minute.

Twelve of these patients I placed upon a reliable tincture of digitalis, and gradually increased the dose; but, although in most of these cases the cardiac contractions became perceptibly stronger, the pulse remained as rapid as before. For this reason, and because the heart-sounds are usually of a good character, I believe that the rapidity and the occasional disturbances of the rhythm of the heart's action are due to some involvement of the pneumogastric nerve or its centre.

There is one patient in the wards who at times suffers from profuse sweating of the face, which is usually unilateral; and another man whose face has been extremely flushed since the beginning of his disease. Probably both of these symptoms are of vaso-motor origin.

There are two patients in the wards who suffer from joint-affections which seem to be of the nature of tabetic arthropathies. In one of these cases the affection consists of an alteration in the shape of one knee-joint, with mobility of the head of the fibula. In the other it is a hard and irregular swelling of the ankle. Both of these changes have developed slowly and are unattended by pain.

Another ataxic patient suffers from a perforating ulcer of the foot. I have not noticed any cutaneous disorders which could be attributed to trophic changes.

In concluding this report, the following case may prove of interest from a diagnostic stand-point. A patient, whose case had stood on the books as locomotor ataxia for nearly a year, left the nervous wards shortly before my service there commenced. After a considerable search I found this man, who was a carpenter by trade, working in another part of the hospital, upon the eaves of a building,—a most dangerous place for an ataxic. Upon inquiry, I found that the man now complained only of pain in his right hip and occasional dizziness. The loss of the knee-jerk, fulgurant pains, and ataxia, which were present during his residence in the nervous wards, had quite disappeared. The case was evidently one of “pseudo-tabes” depending upon neuritis.

A CASE OF FOCAL EPILEPSY FROM NECROSIS OF THE PRE-FRONTAL LOBES, IN A URÆMIC PATIENT.

SERVICE OF DR. JAMES HENDRIE LLOYD.

By DAVID RIESMAN, M.D., RESIDENT PHYSICIAN.

E. L., a white woman, aged fifty-two, English, married, domestic, was admitted to the Philadelphia Hospital, November 29, 1892, on account of epilepsy. She had been in the nervous wards of the hospital on a number of occasions for the same disease; the last was her tenth admission.

The family history was entirely negative. From the patient's own history we learned that she had been an inveterate drinker for many years; that her passion for liquor had led to great unhappiness in her family, eventually to a separation; her children even deserting her.

Regarding her disease, she stated that the first convulsion occurred four years before, without any apparent cause, lest it was the changes incident to the climacteric, that involuntional period having coincided with the development of her disease. There was no history of traumatism.

The frequency of the fits varied; at times she had a series of convulsions in rapid succession. Thus she had once twenty-three in a single day.

Status præsens.—The patient was a robust, rather obese woman, below the average height, active, and possessed of a fair degree of intelligence. Both of her arms were badly contractured at the elbows by extensive scars, the result of a severe burn received during one of her convulsions.

She complained occasionally of rheumatic pains in the back and lower limbs.

From the time of her admission in November, 1892, until April 4, 1893, a period of more than four months, she was entirely free from attacks. On the last-named day, without any apparent cause, she had a series of thirteen fits, extending over five or six hours. She would in all probability have had more had she not been put under the influence of ether. The earlier attacks of the series involved the right side of the face and the entire forehead, but not the limbs, and were ushered in by a moaning cry.

The face was strongly drawn to the right, and the eyelids twitched; the pupils were equal and of medium width.

The conjunctival reflex was sluggish, especially in the right eye. As the fit drew to its close the eyes deviated upwards and to the right; the breathing was loud and stertorous.

The tongue was severely bitten and bled considerably. In the later attacks the

right arm and leg participated in the convulsive movements, the arm to a less extent than the leg.

Between the fits the patient was conscious and able to answer questions. In the evening she complained of general soreness and distress, and of pain in her tongue; was slightly nauseated from the ether, and vomited a few times.

On the following day the convulsions returned, and she had five in the course of twenty-four hours, the features being the same as before. During the next three days, April 6th, 7th, and 8th, she had seventeen, eight, and two convulsions respectively.

This large number of motor discharges, occurring in such rapid succession, produced a great degree of exhaustion. Her appetite failed; she became petulant and irritable; confused in her speech; forgetful of time and place. Her tongue was very sore, and the pain in it was the cause of the patient's chief complaint.

The urine contained a faint trace of albumen, was acid, and had a specific gravity of 1016. The microscopic examination showed pus-corpuscles and bladder-cells.

On the 9th of April the patient had not a single fit. As she had had only two on the 8th; it was concluded that the spell had been broken. Unfortunately it was not so. On the 10th she had forty convulsions, or almost as many as on the five preceding days. They were of the same type as has been described. During the night of the 10-11th the convulsions were inaugurated by a loud cry. At times this cry would resound uninterruptedly for minutes without the occurrence of a convulsion.

On the 11th the convulsions reached an unprecedented frequency; they followed each other with frightful rapidity. Scarcely had the patient recovered from one, when another deprived her of consciousness and shook her body with unabated violence.

The interval was often not longer than five or six minutes; at times it would extend over a quarter of an hour. A carefully kept record showed at the end of the day a sum of one hundred and forty-six convulsions. Regarding their type, a peculiar modification was observed. Instead of the entire right side, as heretofore, being involved, the movements limited themselves to the right side of the face and the left arm; neither of the legs took part in the convulsion. The movement of the left arm was one of prehension, of grasping.

Various measures were employed to check the fits, among others bleeding and anæsthetization, but none had more than a transient influence.

The patient was exhausted proportionately to the tremendous expenditure of energy; her appetite was completely in abeyance; the tongue heavily coated; the breath foul, and the lips covered with sordes.

On the next day, the 12th of April, the convulsions continued with the same inexorable regularity as on the foregoing day. Occasionally the interval was somewhat longer than usual, giving rise to the vain hope that the fury of the nerve-storm had spent itself.

Chloroform gave the patient freedom from attacks for three hours. Chloral by the rectum and by the mouth had no abiding influence. Despite all treatment, the seizures recurred again and again, numbering ninety-six in the twenty-four hours of April 12th.

At midnight of the 12th, immediately after a convulsion, forty grains of chloral were given by the mouth, and fifteen minims of the tincture of digitalis hypodermically to guard. This seemed to break the spell; the patient had no more convulsions.

She was quiet during the next day, but took only a small amount of food.

The urine contained a faint trace of albumen and some hyaline casts. Later, a few dark granular casts appeared, without any increase in the albumen.

On the 14th the patient vomited large quantities of a dark, greenish-brown fluid, of a disagreeable odor. The vomiting occurred at all hours, absolutely nothing, not even calomel in doses of one-tenth of a grain, being retained. Her mental condition became much impaired. She became irritable, peevish, threw off the bed-covers, attempted to leave the bed, and gave out at intervals loud, penetrating cries. The pupils were widely dilated, but reacted to light. The skin was slightly icterode.

The temperature, somewhat elevated during the first two or three days, sank to normal, and later to a subnormal point. On the 15th it fell as low as $94\frac{1}{2}^{\circ}$; the pulse was scarcely perceptible.

On April 16th, four days after the last convulsion, the patient developed peculiar twitching movements involving the head, the right shoulder, and the left arm. The head was jerked upward and to the right, the chin being elevated,—a movement probably due to clonic spasm of the right sterno-cleido-mastoid muscle. In the shoulder the movement was a quick, upward shrugging. The left arm was alternately flexed and extended. These three different movements occurred both synchronously and separately.

The patient lay on her left side, was exceedingly peevish, turning angrily away and shrieking loudly when in the least disturbed. Urinary secretion was almost suppressed; the temperature was high, above 102° . After the twitchings above described had continued for about six hours, the patient became, so it seemed, hemiplegic on the right side. The right leg lay motionless; the right arm was moved only at the shoulder-joint, not at the elbow. When lifted and allowed to fall, leg and arm dropped heavily and lifeless on the bed. Tickling of the sole caused very active flexion in the left leg, but almost none at all in the right. The knee-jerks were normal; the pupils equal and dilated. Temperature in right axilla, $100\frac{3}{4}^{\circ}$; in left, 100° , a difference too small to be of diagnostic value. As will be seen later, no lesion was found post-mortem that could have given rise to the hemiplegia.

The patient at this time was considerably jaundiced, especially about the chest, face, and in the conjunctivæ.

Wherever the hypodermic needle was inserted the skin assumed a bright yellow tint, which spread centrifugally for some distance.

The patient's coma gradually deepened, the spasms continuing until just before the end.

From a record of the convulsions, it was found that the patient had a total of three hundred and twenty-seven, extending over a period of nine days. Disregarding the day on which she had none, we count three hundred and twenty-seven seizures in eight days, or a diurnal average of forty-one.

At the autopsy, performed twenty-three hours after death, the following notes were taken:

Body of a well-nourished female with an abundance of subcutaneous fat. Face and conjunctivæ intensely icterode. Rigor mortis well marked.

Thorax.—Old adhesions of pleura on left side at base and extending posteriorly almost up to the apex. Right pleura also adherent.

Heart and pericardium.—Both sides of heart are flabby and distended. Pericardium normal. Right auricle contains ante-mortem clots; right ventricle a small amount of clotted blood. In the left auricle there is some fluid blood; also in the left ventricle. The valves on the right side are normal. The aortic valves are

rigid and fibroid. No evidence of recent inflammation. The mitral valve shows evidence of old valvulitis; it is thickened and fibroid. Weight of heart, 12½ ounces.

Lungs.—The left lung is intensely pigmented and oedematous; shows hypostatic congestion over the whole of the posterior surface. Weight, 14½ ounces. The right lung shows the same changes as the left; has two or three spots of catarrhal pneumonia at apex. Weight, 16 ounces.

Spleen.—Weight, 3 ounces; small and granular. Left suprarenal, normal; right suprarenal, normal.

Kidneys.—Left kidney is lobulated; a few small cysts under capsule. The capsule is loose; on removal, leaves a yellowish mottled surface. Cortex very much thickened; pyramids lessened; weight, 5 ounces. Right kidney shows same changes as left; chronic parenchymatous nephritis; weight, 4½ ounces. *Ureters and bladder*, normal; the latter is empty. *Rectum*, normal. *Genital organs*, normal. *Duodenum, stomach, and pancreas*, normal.

Liver.—Weight, 33 ounces; is flabby; capsule distended; margins ulcerated; contains a cyst in left lobe. Organ extremely pale and yellow; an obstructive jaundice of left lobe; stains knife on section.

Brain.—Anterior lobes adherent to base of skull.

At the anterior tip of each frontal lobe there is an area of necrosis or softening,—brown, superficial in extent, involving scarcely more than the gray matter. With the exception of this, no distinct pathological lesion was found in the hemispheres, capsules, basal-ganglia, mid-brain, cerebellum, or pons. The pia-arachnoid is not unduly opaque over the frontal region, and strips readily and cleanly from the convolutions.

The blood-vessels at the base, of which the basilar was specially examined, are normal.

Pathological diagnosis.—Chronic tubular nephritis; old valvular heart-disease; old basilar meningitis; old pleurisy; necrosis of pre-frontal lobes.

The interesting discovery of softening of the frontal lobes suggests a possible connection between the epilepsy and this lesion.

Physiological experiments by Ferrier, Schäfer, Horsley, and others, as well as clinical and pathological studies, have shown that the frontal lobes are not endowed with any demonstrable important motor or sensory function. Excision or destruction by disease of one or both frontal lobes results neither in a motor nor a sensory defect. Irritation, according to Ferrier, causes associated movements of the head and eyes to the opposite side, together with opening of the eyelids and dilatation of the pupils. A destructive lesion produces conjugate deviation of head and eyes to the same side. In this case the conjugate deviation of the head and eyes, the opening of the eyelids, and the dilatation of the pupils were present, the deflection being to the right.

Whether from greater irritation of the left side, or from total destruction of the cortex on the right, it is perhaps impossible to say.

There was no macroscopical alteration in the motor area to explain the movements of the limbs.

Dr. Lloyd suggested a possible diffusion of the irritation from the frontal lobes to the neighboring motor regions.

During the first days of the patient's illness the question arose as to whether the convulsions were uræmic or not.

The post-mortem examination demonstrated distinct pathological changes in the kidneys; these may have played a rôle in the causation of the patient's symptoms, but almost certainly did not give rise primarily to the convulsions, or determine their character and peculiar localization.

TEMPERATURE IN URÆMIA.

BY DANIEL E. HUGHES, M.D.

I DESIRE to call attention to a symptom occurring during uræmic intoxication which has not attracted the attention its importance demands. A reference to the text-books upon the practice of medicine or to works upon diseases of the kidneys will at once impress the student with the little importance given to the temperature found in the greater majority of cases of uræmia, when looked for, a symptom so prominent and so constant as to be of diagnostic value and therapeutic importance. Flint¹ makes no reference to the temperature record; Loomis² says, "the temperature in some instances is raised as high as 107°." Da Costa³ makes this only reference to the subject, "The temperature in uræmic convulsions is said by Bourneville to be low; but this is denied by a recent observer," no reference being made to the temperature found in the profound coma of uræmia. Osler⁴ makes no reference to the subject. Strümpel⁵ says, "The temperature but rarely remains unchanged in severe uræmia. If there are convulsions, it usually rises several degrees,—in severe cases to 106° or 108°. We have seen these high temperatures, especially as a terminal rise, with such cases." I might refer by name to other works upon the practice of medicine, but these are sufficient to show how little is said of the symptom. Indeed, many authors assert that the temperature in uræmic conditions is low—below the norm, in the great majority of cases.

I am convinced from a study of the temperature-charts of one hundred cases of uræmia occurring in the wards of the Philadelphia Hospital, in which high continuous or varying high temperature was the prominent symptom, unassociated with brain, lung,

¹ Practice of Medicine, Sixth Edition.

² Medical Diagnosis, Fifth Edition.

³ Text-Book of Medicine, Second American Edition.

⁴ Practical Medicine, Second Edition.

⁵ Practice of Medicine.

abdominal, malarial, or infectious conditions, the temperatures were due to "retention within the blood of poisonous materials which should be eliminated in the urine," as we have proven time and time again by directing treatment to the elimination of such waste products. Of the one hundred cases used as the basis of this paper, fifty-nine died, and of these forty-two were posted, confirming thus the diagnosis. I therefore base the statement, that in uræmia the temperature is usually high, reaching 103° to 105° , and this without the occurrence of convulsions, on the results found post-mortem in the forty-two cases upon which post-mortem examinations were made. It was my intention to give the clinical history of the entire forty-two cases, but the great length of the paper prevented its publication in these hospital reports, where I was desirous of placing the record. I have therefore selected six typical cases from the number studied clinically and post-mortem, and submit below the charts.

In the "American Journal of the Medical Sciences," for January, 1893, Da Costa, in an article entitled "Albuminuria and Bright's Disease," thus recognizes temperature in uræmic conditions, "a symptom worthy of note is the slight rise of temperature, particularly in the afternoon; and this teaches us to think of what the kidneys are excreting when we try to explain those slight but long-continued elevations of temperature, seemingly causeless, that we sometimes meet with." Bartels¹ called attention to the rise of temperature following uræmic convulsions and remaining abnormally high for some days in cases when the convulsive attacks rapidly succeeded each other. Bartels, however, did not think that the abnormal temperature he had observed resulted merely from the violent muscular exertion during the fits. He did not carry his observations further than the record during and following the convulsions, and investigate the temperature record of uræmic coma, dyspnœa, rheumatism, and mania.

The views of the great majority of the profession are that the temperature record of uræmic conditions is a low one, and this has caused many errors in diagnosis and treatment. The teachings of many of the schools must be to the same effect, for I find our newly-appointed resident physicians under the impression that they will find uræmic conditions associated with low or sub-normal temperature. I learned the error of such teaching by

¹ Ziemssen's, vol. xv.

some sad results, and to give others, who have not seen so much of this condition, the advantage of my experience, I pen these lines. Until I had properly appreciated the temperature record of uræmia, I was frequently puzzled by sudden and apparently unexplainable rises of temperature amongst the patients in the insane department of the hospital.

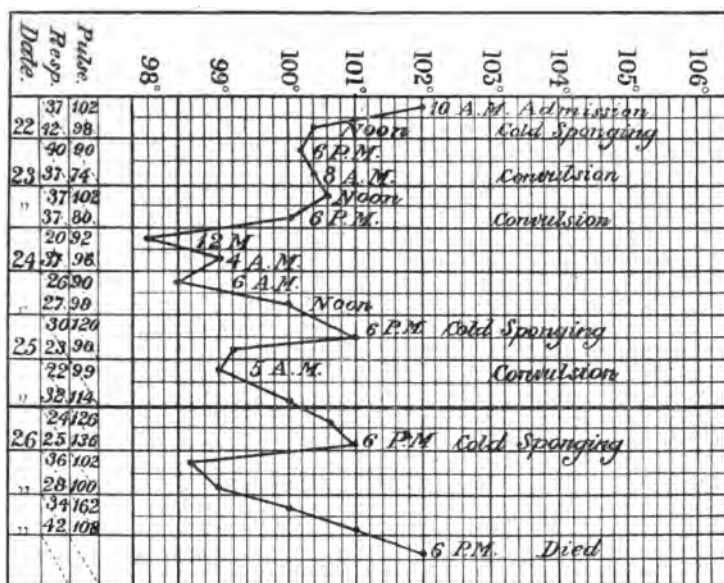
Frequent reports would be brought by an attendant that some particular patient suddenly felt faint, complained of headache, vertigo, often nausea with or without vomiting, had a face flushed and hot, dry skin, and on being placed in bed showed a temperature of 103° to 105° , pulse 120, with tension, with respirations of twenty to thirty. No convulsions or coma. An examination of the various organs showed nothing. Antipyretics would be of no avail. It was noticed that the urine was always scanty and light-colored in such cases, and often had to be drawn with the catheter. These symptoms would arise in patients who had shown no previous evidences of any form of nephritis. After a time, by excluding each organ, we began to recognize the uræmic cause of such attacks and directed treatment accordingly, with such drugs as saline purgatives, caffeine, pilocarpine, spartein, nitro-glycerine, sodium benzoate, etc., and within a day or two the patient would show a speedy return to health.

The same cause I believe to be operative in many of the sudden attacks of biliousness, as hinted by Fothergill, and also the real trouble in the frequent attacks of alleged malaria, we hear so much of. A study of the temperature, with an examination of the urine in all such cases, would give a clearer indication for therapeutics than the names given would indicate. I attempt no discussion of the cause or causes producing the complex of symptoms we are used to speaking of as uræmia, nor any description of the various clinical varieties; my sole object being to place on record my belief that the temperature in uræmia is one much above the normal, and not a normal or subnormal temperature. I herewith submit most briefly the cases with the clinical charts:

CASE I.—C. B., aged forty years; white; admitted February 22, 1892, in comatose condition; no dropsy; no history obtainable; died February 26, 1892. I append clinical record.

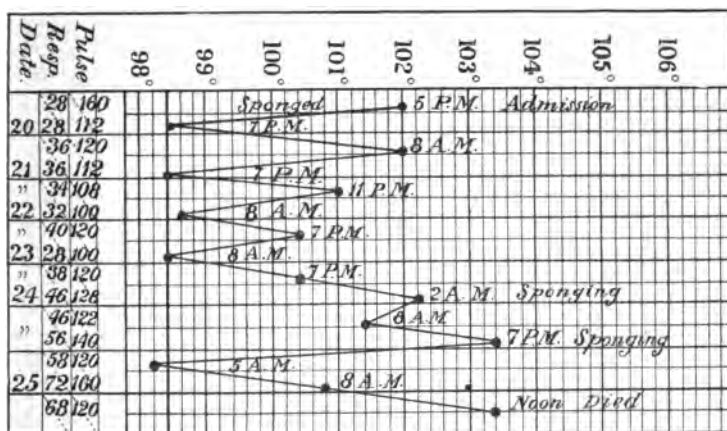
Post-mortem, twelve hours after death: Brain, excessive amount cranial fluid, otherwise normal; lungs, normal; heart, left-sided hypertrophy; kidneys, congested, large, white, with beginning interstitial changes; capsule, adherent; weight, right, seven ounces; left, six and one-half ounces.

CASE I.



CASE II.—W. M. K., white; aged forty-five years; admitted June 25, 1891, with hot, dry skin; labored breathing; frequent vomiting and semi-stupid; four hours after admission had a slight convulsion, after which he seemed brighter and

CASE II.

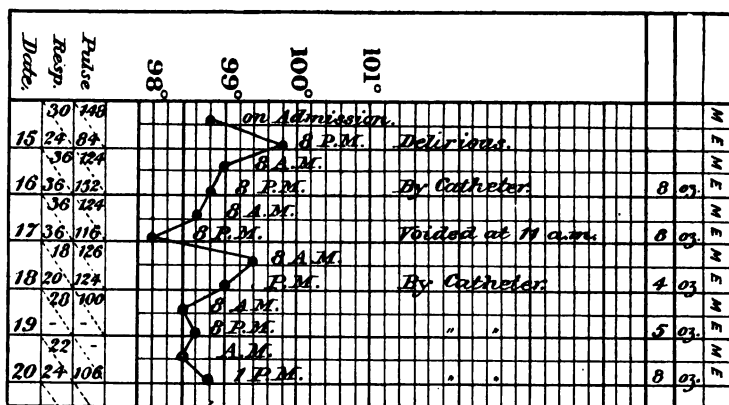


soon fell into a quiet sleep of some five hours; on awakening, complained of headache, was restless, moaning and vomiting, soon becoming stupid; comatose condition, with hot skin; swollen, cyanosed face continued until the end, five days after admission.

Post-mortem, twenty hours after death : Brain, large amount (excess) of cerebro-spinal fluid, adherent dura ; lungs, œdematous ; heart, dilated ; kidneys, size about normal, substance in beginning state of cirrhosis.

CASE III.—L. S., white ; aged thirty-three years ; admitted May 15, 1890, with headache, soon becoming delirious, continuing for some ten hours ; the mental condition improving under the use of hot-air baths and full doses of sparteinæ sulphas, hypodermically. The quantity of urine increased, but on examination showed specific gravity 1012, one-third albumin, but deficient in urates. The patient passed into a comatose state, dying on the sixth day.

CASE III.

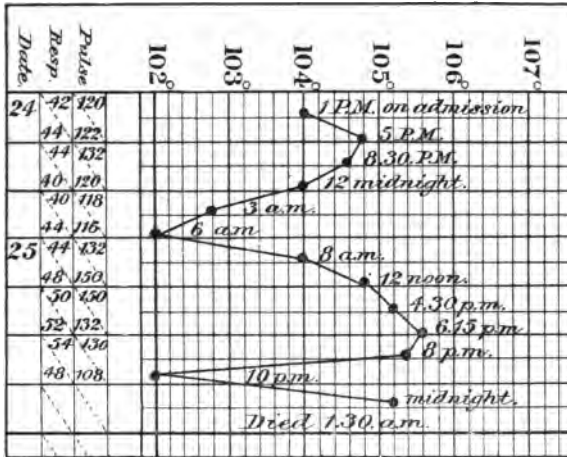


Post-mortem, ten hours after death : Brain, excessive amount of cranial fluid, otherwise normal ; lungs, normal, save scattered pleural adhesions on both sides ; kidneys, congested, large, white, with points of beginning interstitial nephritis ; capsule, adherent ; weight, left, six and one-half ounces ; right, seven ounces.

CASE IV.—A. D. D., female ; white ; aged thirty-seven years ; admitted January 24, 1893 ; suffering from great dyspnoea ; delirious, with flushed face and hot, dry skin ; temperature, 104° ; pulse, 120 ; respiration, 42 ; urine, scanty, pale, specific gravity, 1015 ; one-fourth albumin. Four hours after admission temperature reached 104.5° ; pulse, 122 ; respiration, 44. Under the use of hypodermic injections of pilocarpinæ hydrochloras and caffeine, the temperature gradually fell in twelve hours to 102°, only to rapidly rise again, reaching 105.3°. A cold pack reduced temperature to 102° ; all the symptoms seemingly better, when the temperature suddenly jumped to 105.1°, a short convulsion ending the struggle.

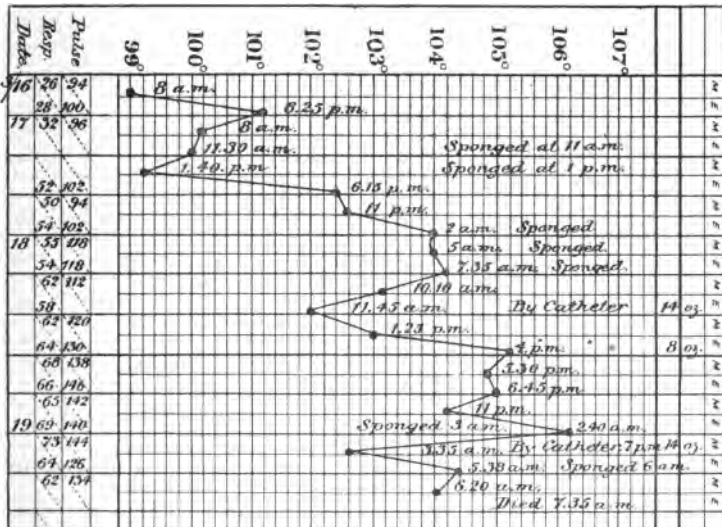
Post-mortem, made six hours after death : Brain, much congested, pia white and opaque ; lungs, evidences of tubercle in upper right lobe, but no active changes ; kidneys, condition of chronic parenchymatous nephritis, left, weighing eight ounces, the right, seven and one-half ounces ; heart, dilated hypertrophy with imperfect mitral valves.

CASE IV.



CASE V.—R. H., aged forty-two years; white; an epileptic for thirty years; admitted March 16, 1893, in comatose condition. The symptoms were those of a typical case of cerebral hemorrhage, the diagnosis of which was rendered all the more probable by a large swelling over the left parietal prominence, said to have been caused by the patient falling suddenly as if with a "stroke." The face was flushed, swollen, and cyanosed. The urine was scanty, light-colored, and contained but a trace of albumen, with a few hyaline casts.

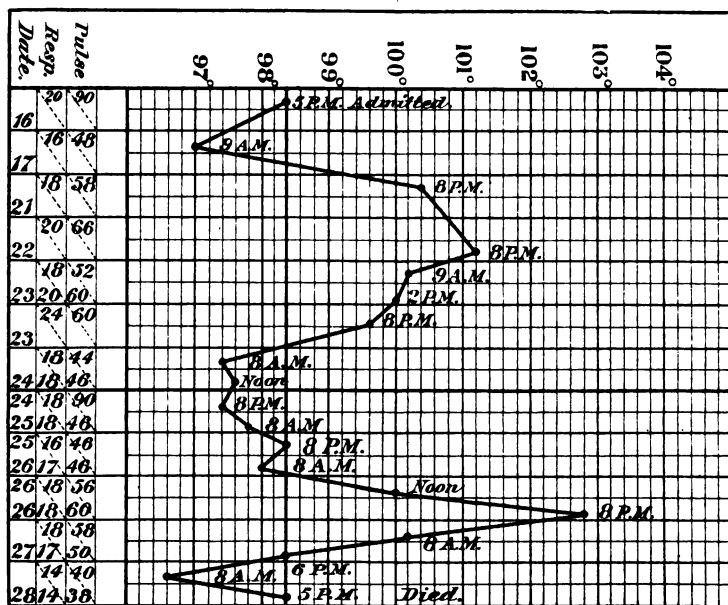
CASE V.



Post-mortem, made twelve hours after death: Brain, excess of fluid, also congested; dura, adherent to calvarium over the left hemisphere; pia, normal; lungs, œdematous; heart, hypertrophied; kidneys small, each weighing scant four ounces, condition of interstitial nephritis; color, dark red; they were irregularly nodulated; the capsule easily removed.

CASE VI.—T. H., white; aged twenty-eight years; admitted May 16, 1892, in condition of acute delirium, which continued for two days, when convulsion occurred of moderate severity, which was immediately controlled by a hypodermic injection of morphinæ sulphas, one-third grain; the temperature falling below the norm and the skin becoming moist; the condition of delirium continuing whenever the patient was aroused from a rather heavy sleep. On the tenth day another convulsion occurred, associated with temperature 102.3°, the hypodermic of morphinæ again rapidly controlling, and the temperature again falling below the norm. This condition was soon followed by œdema of the lungs, cardiac failure, and death.

CASE VI.



Post-mortem: Brain, dry, otherwise normal; lungs, emphysematous; heart, normal; kidneys, large, white, pale; capsule, non-adherent.

The following typical case of uræmic temperature furnishes an excellent example of what Da Costa calls "a symptom worthy of note, teaching us to think of what the kidneys are excreting."

G. M., aged forty years; white; weaver; with good family history and absence of lues in his own history. He has been a steady beer and whiskey drinker for twenty years or more. He was admitted to the insane wards of the Philadelphia Hospital suffering from acute melancholia. His heart, lungs, spleen, stomach, and liver were found normal. An examination of the urine at the time of admission revealed chronic parenchymatous nephritis. The amount of urine passed was about normal; the albumin was about one-sixth of the test-tube on boiling and settling; granular casts were quite thickly scattered through a large field of hyaline casts. Frequent examinations of the urine at various intervals showed, as a rule, a normal amount of urea. His general health for a number of months was good, and, as he began to take an interest in the employment given him, his mental condition began to brighten, and a mental recovery was and is looked for.

June 23d he had an attack of vertigo, associated with nausea and vomiting, followed with severe occipital pain. Temperature, 99.5°; pulse, 114; respiration, 16. The symptoms grew rapidly worse, the temperature going at 6 P.M., 100.2°. After a free action from *magnesii sulphas* his symptoms all abated, his temperature going to 98°. The 25th his temperature suddenly arose to 102.2°; pulse, 114; respiration, 20; and the occipital pain was so severe that, although he was semi-delirious, he constantly grasped his occiput, and his features gave evidence of his suffering. An examination of his urine showed an almost entire absence of urea, with albumin, casts, and some oedema of face and limbs. For the next three days the temperature varied between 100° and 104°, the pulse beating about one hundred and eight times to the minute, the respirations from seventeen to twenty per minute. When the temperature was below 103°, the mind was clear and the pain was intense; when the temperature reached 104°, the patient was mildly delirious. During these days the urine was scanty, not over eight to ten ounces of urine being voided in the twenty-four hours. The patient was now placed on decided doses of *pilocarpine* and *atropine*. For the following three days no change was noted in the quantity or the character of the urine, the pain was less intense, the patient becoming very anæmic and weak, the morning temperature being about 100°, the evening temperature 103°. The patient was now placed upon the original formula of Basham (an excess of acetic acid) and small doses of *tinctura cantharidis*, which rapidly changed the character of the symptoms; the quantity of urine voided rising to thirty ounces in the twenty-four hours, specific gravity, 1020, the albumin and casts remaining as previously; but with this increased flow of urine the temperature rapidly fell to the normal, and the patient entered into a rapid convalescence, a month afterwards being as well as before the attack. I have no doubt that some day this patient will have a fulminating uræmic attack, when the diagnosis now so positive will be confirmed.

CONCERNING SOME OF THE ALIMENTARY AFFECTIONS IN THE INSANE.¹

By AMELIA GILMORE, M.D.

IN attempting to give some practical information of my daily work among the insane, I am led to the statement that it is the condition and treatment of the alimentary tract which demands the attention of the physician more than any other part; and it is reasonable that it should be so. The body, as a machine or engine controlled by the mind, must have a due amount of fuel in order to supply the power without which even the mind, as the engineer, cannot overcome the inertia; and, further, the machinery will be clogged and the fire burn slowly unless the *débris* is frequently removed.

This is a gross comparison, for there is no machinery made which is so complex as the human body, and no governor so delicate in operation or so liable to be affected by certain adverse influences as the several nervous centres which preside over the different functions of the body. The gastro-intestinal canal is responsible for the sustenance of the body and for the removing of the waste products,—one part serving for the purpose of building up, the other to dispose of what is of no further use in the economy. Both are beneficent. Neither can carry on its part successfully without co-operation of the other.

I observe the victims of mental disease on admission to the hospital in restless mania, chattering like magpies, trying to escape from those who have brought them; or in the other extreme of deepest gloom and despondency, where the mental degradation has been so extreme as to induce even the attempt at self-destruction; or the patient belongs to the class of cases where no mental act seems possible, and there is a stupor which is even more dis-

¹ Read before the Philadelphia Hospital Staff Medical Society, May 18, 1892.

treasuring to behold than the other, even the brutish instincts being in abeyance. I observe them daily, taking note of all the changes,—the progress, the relapse, the stationary condition, the slow or rapid improvement; and, again, I meet them going out, possessed of all their faculties, useful to their kind and happy in the love of their friends.

As these conditions and results come before me daily in my hospital practice, I ask the question, What has been the influence which has brought them from the state of mental unsoundness to soundness,—from insanity to sanity? and putting aside all unnecessary verbiage, all technical phraseology, I answer to myself that it is chiefly the care of the alimentary tract which has brought about this metamorphosis.

The processes of digestion are accomplished by natural means without the control of the individual, but the taking of food and the evacuation of the waste require thought and some degree of co-operation; therefore, these two essential operations in the pre-occupation of the mind, characteristic of some forms of insanity, are imperfectly performed at first, and later, perhaps, neglected altogether; or, if a suitable amount of food is taken, there is neglect in removing the refuse, and auto-intoxication is the result; or the reverse is the condition, and we have the bowel open, but a blind yielding to anorexia, and there results poverty of blood, all the bodily functions imperfectly performed, and the bowel becomes torpid for lack of employment. And this is true, not only of the acute cases of which I have been speaking, but it is likewise applicable to many of the chronic cases,—the long hospital inmates. In the majority there is an intimate relation between the non-removal of waste from the system and the maniacal outbreaks, hypochondriacal or profound melancholic states, which sweep over them from time to time, alternating with the calm of increasing dementia.

I mean to say that a rigorous attention to the needs of the alimentary canal in those bereft of reason should be among the more important offices which an alienist has committed to his charge—the healthy body paving the way for the healthy mind.

What is the usual physical condition of the patient when received? Rarely other than this: a flushed face, an oily or a dry skin, a coated tongue, a foul breath, a quickened pulse, an anxious expression, or terrorized with dilated pupils. The poor creature

seems entirely out of harmony with the world. The mind is out of tune, the strings are loose, and the delicate touch of the practised hand is necessary to make them chord again. To this end all the strain must be removed, all foreign particles wiped away. But no simile is complete. We have a body fed with poisoned pabulum. It must be purified, freed from the toxic elements, before we can reinvigorate it and calm the excited cerebrum, opening new channels of thought when the ego has been unduly exalted, and allowing time for the worn-out or deteriorated nervous elements to recuperate.

And what has produced this mental disturbance? It is possible that insanity has a positive physical basis, as have other diseases; but we are not yet able to trace it in every case. In most it appears to be functional, and we have irregular mental action or limited action, exaggerated mentality or suppressed, dependent on the condition of the higher nervous centres and the connecting lines. While primarily inherited, tendencies to neurotic unsoundness play a very important part. The exciting causes are many and vary in each individual, but after the morbid condition is once set up, then an alimentary disorder with systemic poisoning, such as I have described, is sufficient to excite maniacal outbreaks or melancholic gloom—the suicidal or homicidal impulse. From this vice of the nervous system a mental pre-occupation ensues which determines the first bias, and the interaction once set up it gathers force as it proceeds. The blood takes on a toxic character. The septic influence is disseminated through all the tissues. The mental confusion thickens, till, finally, the upheaval may be so great that a long period under treatment is necessary to reinstate the dethroned reason.

Again, though constipation does not of itself or unaided produce insanity, it is a concomitant of it, or forerunner of it, preceding relapse. As shock may be the cause of mental alienation in a previously healthy brain, so an alimentary disturbance may act as a shock to the nervous centres; a lighter cause sufficing to cripple them when the mental stability has been once overthrown.

It is recognized that there are symptoms belonging both to the neurotic diathesis and the insane, a common ground where they may meet. Given the neurotic diathesis, supplemented by habitual indigestion and constipation, either one or both these evils, and

there will be a struggle between sanity and insanity, between mental health and mental disease, the tendency being always towards the latter.

These alimentary disorders are not so frequent among the stationary cases, those who have spent long years under hygienic rules and the constant medical supervision belonging to a hospital for the insane, but they are found, as a rule, among the new arrivals. Thus in a ward where there are only cases of long-standing, only one in ten requires the frequent or continuous laxative; while in the wards where are placed acute cases with convalescents and a sprinkling of the better class of chronic patients, fully half the number have the constipated bowel, either habitually or periodically, and the proportion thus affected among the whole number of women is fully forty per cent. of the whole.

In my daily rounds I learn to recognize the changes, slight or severe, which tell me that the rectum is loaded or peristalsis imperfectly performed; changes imperceptible or unaccountable except to the accustomed eye. Sometimes it is only a drooping of the head, sometimes an inclination to talk more or less than usual, or a change in place or position. A negligence of dress, a flushed face, or a pale one. A hand extended, or one withheld. A prominence given to delusions or hallucinations which are usually kept in the background.

Drowsiness is another symptom of the same import; more frequent urination; a desire to escape the doctor's eyes; hiding in corners. A quarrelsome mood or a disposition to find fault; sudden violence. A desire to speak with the doctor on some foreign topic not at all connected with the state of health, or imaginary ills are dwelt upon, and attention is called to the heart, or lungs, or head.

Restlessness, laughing or crying, and refusal of food is frequent; also vomiting. One patient mutilates her face, tearing off the skin. Cases are not infrequent where fever is present. Sometimes the first knowledge of the condition of the lower bowel is the existence of a high temperature, even 103° , with quickened pulse and dry skin, and this continues until there is free bowel evacuation, when the decline to the normal temperature quickly takes place.

The stimulus to the increased oxidation would seem to be chemical, the result of the presence of poison in the system the

product of retained waste. Also it is found that the urine is increased in quantity with the amount of urea augmented, and an increase of carbon dioxide has been noted in this condition.

I have had cases where the presence of an abdominal tumor was plainly made out. This tumor gave rise to pain on palpation, and there was distention of the surface, and its outlines could be distinctly traced. Attending symptoms would be anorexia, foul breath, coated tongue, constipation. The tumor of impacted forces would give way to free irrigation and purgation.

Persons suffering under depressive delusions are usually inactive,—all exercise is compulsory,—and this increases the tendency to bowel torpor; while, too, there may be general weakness, all the nervous forces at a low ebb, and the digestive organs suffer primarily, feebly responding to stimuli. The appetite demands little, the sense of taste is in abeyance, and we have the “vicious circle” complete.

That a pathological condition of the abdominal organs may provoke mental alienation is certain, and many cases of hypochondriacal insanity are directly traceable to such irritation. With the mind concentrated on the morbid impression which a disordered viscus sends to the cerebrum, connected or rational thought on other subjects is impossible, and the result is exaggerated importance of the one, an exaltation of the unusual phenomena, and delusions more or less systematized are the result, followed by hallucinations.

A case in point is that of C. S., aged thirty-six, admitted March 15, 1892. Had been under treatment at Pennsylvania Hospital for dyspepsia. Having returned home, she attempted suicide by throwing herself from the third-story window, escaping with slight bruises only.

On admittance she was said to have had hallucinations of sight and sound. I found that she complained of pains by turns from every organ and tissue, and she believed that she could neither eat, sleep, walk, sit up, nor lie down. She also had hallucination of taste, refused food, and tried to vomit her food soon after ingestion.

Her physical condition was good, except for the chronic gastric catarrh associated with constipation, which had been no doubt the cause of her mental alienation.

These two physical ailments were treated. In two weeks she was eating well without urging, in four weeks she was improved so much that she wished to work, and in six weeks was practically well.

Another interesting and rare example of insanity dependent on a pathological condition of the alimentary tract is furnished by a patient admitted to the Insane Department of the Philadelphia Hospital, April 21, 1892.

M. McC., admitted April 21, 1892, aged fifty-nine. On examination she had a worn, pinched expression of face, though fairly well nourished. She said at once, whispering confidentially, "I wish you would get this devil out of me," at the same time putting her hand to her left side, signifying that her trouble was there.

Her explanation was given in fragments and after much urging, as she was irritated that any more words were necessary, for if I would but listen I could hear the woman talking, and save all trouble of questions. The voice she believed came directly into her ear, and was so distinct that every one should hear it.

Briefly her story was this: Some years ago a certain Mrs. McAllister came to visit her when she was ill, and after bidding her to repeat some prayers had suddenly jumped down her throat, and had been safely ensconced ever since in her left hypochondrium. She not only made her home there, but she fed off her vitals.

As she talked, she would now and then give a little start or slight hiccough, and putting her hand to her side say, "She is taking a bite now." Mrs. McC. was at times noisy and profane, and generally expressed her opinion freely about all that was going on; in fact, she talked almost constantly, though the patient regarded her as of some use, for she was able to tell her of events occurring in the next room, or in some other parts of the hospital, and her information could be relied on. Sometimes she was bent on giving trouble, and made herself very large and heavy, so that it was difficult to carry her.

The woman had a feeling of resignation to her fate, as she felt that nothing could be done to ease her of her burden without a surgical operation, and this she would not submit to, though she thought the priest could relieve her; but she said she had been forbidden the use of a hospital room for this purpose. She complained of being very weak and miserable, and that she could bear the strain no longer.

Three days after this she refused to answer when I inquired after her health and that of Mrs. McAllister. She was angry and sullen, and I waited three days more, when I came for a talk concerning her condition. She now reproached me in the bitterest fashion for having taken the woman from her without her consent, saying that she had been stupefied and dragged from her bed to the water-closet, and left with hardly strength enough to sit up in the morning, declaring that she had not asked for her removal, and I was alone to blame.

The delusion and hallucination had passed entirely with the use of suitable catharsis.

Obscure abdominal sensations may give rise to false impressions in the disordered brain, and the frequently-expressed delusion occurs that they have no bowels. One asserts that her stomach and bowels are dead; another that her stomach is burning up.

The hypochondriasis which is so common in states of depression dwells oftener upon these abdominal organs than on any other part.

To relieve this evil-starred condition in the insane requires the co-operation of doctor, nurse, and patient. The patient alone cannot be relied upon, for she probably knows the effect of drastic cathartics, and will think that the bowels have not opened at all, or that there has been only a very small stool after a laxative, as she misses the teasing and stinging of the drastics.

Others forget the occurrence of the movement, having no intention to deceive, and a proportion habitually prevaricate in order to get the doctor's attention and medicine, while others objecting to medicines strive to mislead. Again it often happens that it is necessary to overcome the habit of years,—the lack of system and inattention to the demands of nature,—so that the task is not light.

Having the entire control of the patient, the mania or melancholia dependent on this morbid state is relieved or recovery is complete; but on return to their friends many of them suffer relapse, and the same process is repeated. In all such cases I now observe the practice of prescribing for them, as they go out on parole, such laxative treatment as is indicated, giving exact instructions for its use, and representing the dangers consequent on its neglect. Cases resembling the following are not uncommon :

The patient, F. T., white, aged forty-two years, admitted November 10, 1887, was received in profound melancholia. She remained three months in the hospital and was then paroled in fair condition. But two weeks sufficed to bring on a return of her madness, and she was brought back, being suicidal. A similar treatment to the first was begun, and she spent a period of four months with us; at the end of which time she was again taken home, and remained there for three months. She was returned now in an abject condition with complete anorexia, requiring forced feeding. The mental change was so great that eleven months now passed before she was again taken out. Again she remained three months at home and returned with the alimentary tract disabled as before. This time she was seven months under treatment, when she went away for three weeks only. Again, four months were necessary to restore her to herself, and then, on paroling, a laxative medicine was prescribed with careful directions for its use. She has now been with her family for fifteen months, with no return of insanity.

Friends are generally surprised at the greatly-improved appearance and behavior of the newly-arrived at the end of the first hospital week. There is such a clearing of the mental horizon after catharsis, that it has the effect of an electrical storm on the atmosphere in a summer's day. The patient may have been quarrelsome, maniacal, or depressed as a result of the toxic element, and the fine adjustment and co-ordination required for proper mental balance was not maintained under the adverse conditions, and there was irrational thought and act.

It is a fact well attested that in the strongest minded a constipated bowel will often produce a despondency which is, in fact, a mild melancholia, and which, but for the fact that it is transitory,

would be so regarded. Many mental inconsistencies may be traced to this source, and in such a case a rose-colored view of life signifies only a healthy alimentary tract. But having an unstable equilibrium and normal processes of secretion and excretion interfered with, either lessened in amount or suppressed by a full bowel, which allows for the accumulation of morbid products of tissue waste in the blood, we find that the most highly organized tissue quickly feels the effect of the vitiated circulating fluid from which it takes its sustenance, because it is more susceptible than any other, and its highest function, that of intellection, rapidly shows the change.

An opposite condition to that I have dwelt upon, namely, enteritis, chronic and catarrhal, is frequently observed in insane cases, when the fault seems to lie in lack of nervous tone, and the strength is wasted, nutrition is interfered with, and medicines are used to little purpose. This condition is not uncommon and is interesting, but the consideration of it must be reserved for another occasion. I hope no one will claim that undue prominence has been given to these affections, as I have only desired to place them, as they deserve to be, in the first rank of therapeutic indications in insanity.

OPHTHALMIC MEMORANDA.

By G. E. DE SCHWEINITZ, M.D.

Subsequent history of an unusual case of ciliary neuralgia.—In November, 1887, Dr. E. O. Shakespeare and myself reported to the College of Physicians of Philadelphia the account of an unusual case of ciliary neuralgia, with an erratic history.¹

The patient, Agnes Lawlor, was a widow, aged fifty-seven, born in Ireland, and admitted to the hospital, August 21, 1880, on account of neuralgic pain in a scar situated about the ninth rib, in the mammary line. She was treated in various ways for this condition and appeared to be cured; indeed, she was in the act of leaving the hospital, when she was suddenly seized with a violent pain in the left eye. This was about May 20, 1882, and from that time until the date of the report previously referred to, this woman suffered in the most extraordinary way with violent attacks of pain, followed by acute inflammation of the eye, resulting, finally, in the loss of one globe and a slight conical macula upon the other eye.

Occasionally there were long periods of freedom from pain, but on the whole the case may be summarized by quoting from the description then given of these very peculiar attacks. "The pains now occurred with great frequency, always once daily about 10 A.M., sometimes twice, when the second one would take place about 7 P.M., occasionally a third one in the middle of the night, or early morning. The onset of the pain was as sudden as a lightning-stroke; was instantly followed by œdema and discoloration of the eyelids, reddening and swelling of the conjunctiva and excessive lachrymation. A brawny flush overspread the brow and face, the veins became turgid, the carotids pulsated visibly, the woman bent and trembled in her agony, and presented a picture of utter misery seldom witnessed. If an anodyne was withheld, in a few minutes a mucopurulent catarrh appeared, and within an hour gray sloughs upon the conjunctiva, until the whole eye resembled at the height of the attack a case of purulent ophthalmia. If morphia sufficient to stop the pain was given, and it was the only remedy of any avail, the appearances just described would subside as quickly as they had appeared. We have often observed an attack come on, reach its height, and disappear with scarcely a remaining trace, within an hour, or at most two hours."

All manner of remedies had been tried to relieve this unfortunate woman, and all possible indications had been followed out. Malaria, rheumatism, gout, and syphilis were practically eliminated by therapeutic tests. Local lesions both in and around the eye, as well as in the adjoining cavities, were not present. Badal's operation, excision of the supraorbital nerve, and similar radical procedures, gave

¹ Transactions of the College of Physicians of Philadelphia, Third Series, vol. x.

only temporary relief. It was finally concluded that these pains might be due to a disorder of the sympathetic nervous system and depend upon derangement of the vaso-motor tonus, an idea that was strengthened by the administration of nitroglycerine with some happy results.

The mere presence of pain, even of the violent character which has been described, and the periodic nature which the attacks assumed, so common a feature in neuralgia, were not, of course, matters of special interest; but it is a case of unusual character when it is taken into consideration that these pains continued for years and years with practically no amelioration, except for the periods previously mentioned, and that in a few minutes after the onset of each pain there was an attack of a conjunctivitis, with the formation of pus and positive gray sloughs upon the conjunctiva, indicating a profound trophic influence, the like of which neither Dr. Shakespeare nor myself had ever witnessed.

The full report which was given to the College of Physicians, contained charts showing the relation of the pain to the weather and the temperature, and expert examinations of the blood and various organs. It is deemed worth while to record the final history of this curious case of ciliary neuralgia which has recently been secured.

From the time of the report up to the date of the patient's discharge, she had many attacks similar in character to those which have been described in the previous *résumé*. They always came on about nine or ten in the morning, and occurred at irregular intervals. The patient left the hospital, April 9, 1888. After this the attacks appeared for some time on every other day at 10 A.M., and then at irregular intervals, but always at the same hour. In July, 1888, she had the last attack. It began about 3 P.M., and did not differ from previous manifestations, except that it lasted twenty-four hours. The pain was so severe that she became delirious, and before the attack was over unconsciousness ensued. With the subsidence of the pain the delirium disappeared, and she was perfectly clear mentally. The eye, however, was swollen far more than it had ever been before; in fact, the turgescence of the tissues was so great that the lids could not be opened for eight days, and the attending physician found it necessary to make scarifications.

About two weeks after this attack she suffered from severe occipital headaches, which were dull in character and associated with marked tenderness at the back of the head and neck. These headaches have recurred at irregular intervals, and seem to bear no relation to disturbance of the gastro-intestinal tract. She has no pain in the eye at these times, but everything appears red during the headache-period. At present her appetite is good; the bowels rather constipated. She has had several attacks of bronchitis, but with this exception has been remarkably well. The woman is in the out-wards of the hospital, comfortable in body, seeing very well, except for some blur caused by a slight macula on the cornea, and entirely free from anything like the attacks of neuralgia which have been recorded; even the occipital headaches are of rare occurrence. For the final history of this case I am indebted to Dr. W. S. Carter.

Just as it has been difficult to assign a reason for the development of this neuralgia, for its long continuance, or, finally, for its entire resistance to treatment, so, also, it is equally difficult to explain its sudden disappearance. It evidently must be relegated to those varieties of prosopalgia in which it is impossible to

demonstrate a lesion, but remains as a remarkable, unexplained clinical case (unless subsequent events should place us in possession of post-mortem evidence) in which alterations of nutrition were so great that distinct inflammation and the formation of pus ensued under the influence of a violent neuralgic pain; and, moreover, that these phenomena were evident within a few minutes after the onset of the pain.

Idiopathic abscess of the caruncle.—J. C., a woman aged thirty, applied for treatment on account of irritation and pain at the inner angle of the left eye. On examination the left caruncle was found reddened and swollen, with a minute drop of pus exuding at one point. The plica semilunaris was thickened, and from it a faint fan-shaped patch of injection passed along the bulbar conjunctiva towards the corneal border. The patient's nutrition was somewhat depressed, although there was no active illness. Three weeks before the ocular disabilities several small, superficial boils had appeared upon her body.

The vision in each eye was $\frac{6}{7.5}$, the range of accommodation was about normal, and there was an exophoria of nine degrees, the left internus being the weaker, and the left eye diverging widely in the attempt to fix a point three inches distant. Each optic disc was a vertical oval of healthy color, and there was no abnormality in the fundus oculi. The refractive error was a slight, simple hypermetropic astigmatism.

There had been no traumatism; there was no history of infection; there were no misplaced cilia, and there was nothing to account for the suppuration of the left caruncle, which was decidedly marked and speedily relieved by a simple incision, save the somewhat depressed nutrition of this patient, which no doubt explained the formation of one or two small furuncles previously noted, unless the suggestion which follows is acceptable,—viz., that the cause of this abscess of the caruncle may have originated in the insufficiency of the internal recti muscles, the left internus being far weaker than that upon the right side.

It is well known that in insufficiency of the ocular muscles a patch of injection not uncommonly appears over the insertion of the weak muscle, a point that has been especially dwelt upon by Lippincott, of Pittsburg.

It is also a clinical fact of common observation that a patch of chemosis, or often a local area of conjunctivitis, will arise in the neighborhood of the insertion of a muscle which has become paralyzed; indeed, it is sometimes the first symptom which calls attention to an accident of this character. Whether in the present instance a functional encanthis brought into existence by the

strain occasioned by an imperfect amplitude of convergence, owing to an insufficiency of the internal recti, most marked upon the left side, could have terminated in a suppurative encanthis, is worthy of consideration. Every clinical observer is familiar with the turgid and swollen caruncles common in patients suffering with eye-strain, and especially with an eye-strain induced by exophoria. It is not unreasonable, then, to suppose that a hyperæmic condition of this body may go on to a positive suppuration under the continuance of the same influence. As a matter of fact, inflammatory encanthis is a rare affection, and the formation of abscess in this body, perhaps brought into existence by glandular infarction, is referred to by Wecker¹ as a distinctly uncommon result.

Abscess of the conjunctiva.—A man about fifty years of age presented himself for treatment, hoping for restoration of vision in an eye that had long been blind. The ball was soft, the cornea entirely opaque, except a small rim in its outer portion through which the iris could be seen, which was pressed forward and in close contact with the posterior layer of the cornea. There was no light perception, and the vision had probably been lost, judging from the clinical history of the case, on account of glaucoma which had received no treatment.

In addition to the lesions which have just been described there was an elevation about the size of an ordinary pea in the lower and outer portion of the bulbar conjunctiva, tender to the touch, and covered with a leash of coarsely-injected, superficial conjunctival vessels. The mass was slightly fluctuating in character, somewhat movable beneath its conjunctival covering, and evidently situated in the subconjunctival tissue. The insertion of a needle exposed a drop of purulent matter. The body was picked up and excised, the incision being sufficiently free to include the whole mass without puncturing its parietes. After removal it was incised and found to be a perfectly circumscribed abscess, or, rather, an encysted abscess. The internal cavity was large enough to contain a drop or two of purulent material, the walls presented a typical pyogenic membrane exterior to which the subconjunctival tissue and the overlying conjunctiva were densely matted into a resisting wall. A section of the tissue under the microscope yielded no more information than that which has already been given,—namely, the ordinary appearances of the wall of an abscess. The man being blind, gave only a very unsatisfactory history, had no memory of an injury, and was simply aware of a spot of tenderness which had existed for some weeks in the region named.

Abscess of the conjunctiva is a rare malady, and it is well known, in spite of the frequent occurrence of suppuration in this membrane as in purulent conjunctivitis, that a circumscribed abscess is uncommon. Cases have been reported in debilitated infants and as the result of injuries;² but in a very considerable

¹ *Traité Complet d'Ophtalmologie*, Tome i. p. 445.

² Compare Wecker, *Traité Complet d'Ophtalmologie*, Tome i. p. 409.

experience in the examination of patients blind from all manner of causes, this is the first example which has occurred to me where there was neither history of injury nor likelihood of local infection.

Right lateral hemianopsia, the result of a blow upon the occiput.—J. J. W., a man about fifty, a German by birth, entered the eye ward of the Philadelphia Hospital on the 29th of May, 1892, complaining of inability to see to the right. He was a well-preserved man, with entirely negative history so far as illness was concerned, having always been healthy, save for some of the ordinary fevers of chi'dhood. There were no evidences of syphilis, rheumatism, or malaria; his circulation was normal; the action of the kidneys good, and the urine free from albumin, casts, or sugar. His mental faculties were clear; knee-jerks, muscle-jerks, and sensation were normal.

A number of months before he entered the hospital, while returning from his work in a distant city, he was set upon by highwaymen and beaten into insensibility with a sand-bag. When he regained consciousness he found himself in the wards of a hospital, and was told that he had suffered from concussion of the brain. He made a good recovery and regained his former health, apparently suffering no ill effect, except that he could not see to the right side.

Upon his entrance into the eye ward the ocular conditions were as follows: Central vision, after the correction of a slight refractive error, normal. Both optic discs vertically oval and of good color, possibly more pallid than normal upon the temporal sides, but in each disc there was a shallow excavation. The retinal veins and arteries were of natural size, and there was no lesion in the retina or choroid. The excursion of the eye-balls was good in all directions, and the pupillary reactions were natural. There was complete right lateral hemianopsia, the dividing line touching the fixing point on the horizontal meridian, and passing close to the vertical line above and below it.

His head was shaved and the skull examined for fracture or spot of compression. This examination yielded negative results, except that near the occipital protuberance upon the right side there was a small depressed scar in the scalp, perfectly movable, however, and apparently unconnected with any depression in the underlying bone.

It is evident that the lesion which produced the hemianopsia in this case, owing to the fact that Wernicke's symptom was absent, must have been back of the primary optic centres. In the entire absence of symptoms of localizing value other than the hemianopsia, it is most likely that this lesion consisted of a hemorrhage in the cuneus of the left side; or, at all events, of a lesion of some character which interfered with the cortical centres of vision in this region. The history of his disabilities dates clearly to the assault. Possibly the scar in the scalp may have been a result of the blows which he then received, although it is equally likely that it was unconnected with this event, and in itself bore no relation to the deeper lesion which produced the hemianopsia, and which is an interesting and apparently isolated result of the injury.

OCULAR EXAMINATION OF A MICROCEPHALIC CHILD.

By GEORGE M. GOULD, A.M., M.D.

WHEN I came on duty in February, 1892, my colleague, Dr. E. P. Davis, requested me to examine the eyes of two microcephalic children, of Italian parentage, who had been in the children's ward for some time. The father, an intelligent man, died about January, 1892, aged fifty-five years, according to the report of the mother of the children, having always been healthy until some five months before his death, when he began suffering from a chronic cough, with which he died, and with pain in the chest. The mother of the children was his second wife, was thirty-eight years of age, and the mother of five children. By the first wife he had eleven children, all healthy so far as learned. Of the five children of the second marriage, the mother reports that the first-born was defective like the two to be described, and died at the age of twenty-two months. The third was well-formed, but died at fourteen months, both without medical attendance. The mother carried with her a healthy child of eleven months. She, herself, had always been healthy, well nourished, and had always nursed her children well. She had not been attended by a physician in any labor and had had no miscarriages. All the children had been born by normal head-first labor, and none had had snuffles, or eruption. The mother says both children were born as they now are, *i.e.*, with defective sight and hearing, and with deformed limbs. The younger child, a boy, Nicola F., aged three, still lives, in essentially the same condition as the older, to be described. On admission to the hospital both children were covered with dirt; vermin, all varieties apparently, infested even the eyelashes.

Carmella, aged eight, was born in Campo Basso, Italy. She now lies on her back in an apathetic condition sucking the fingers continuously. The face has an empty, almost stupid expression. The child says no word, but cries when I

endeavor to hold the lids apart. The feet are extended, abducted, the legs partially flexed; there is double talipes equino-varus. The circumference of the calf is 13.50 centimetres, the muscles ill-developed, and fat deficient. The patella reflexes are greatly exaggerated, contractions occurring in both limbs from a single tap on one patella. Sense of pain exists, but there is no movement of withdrawal of limb concerned.

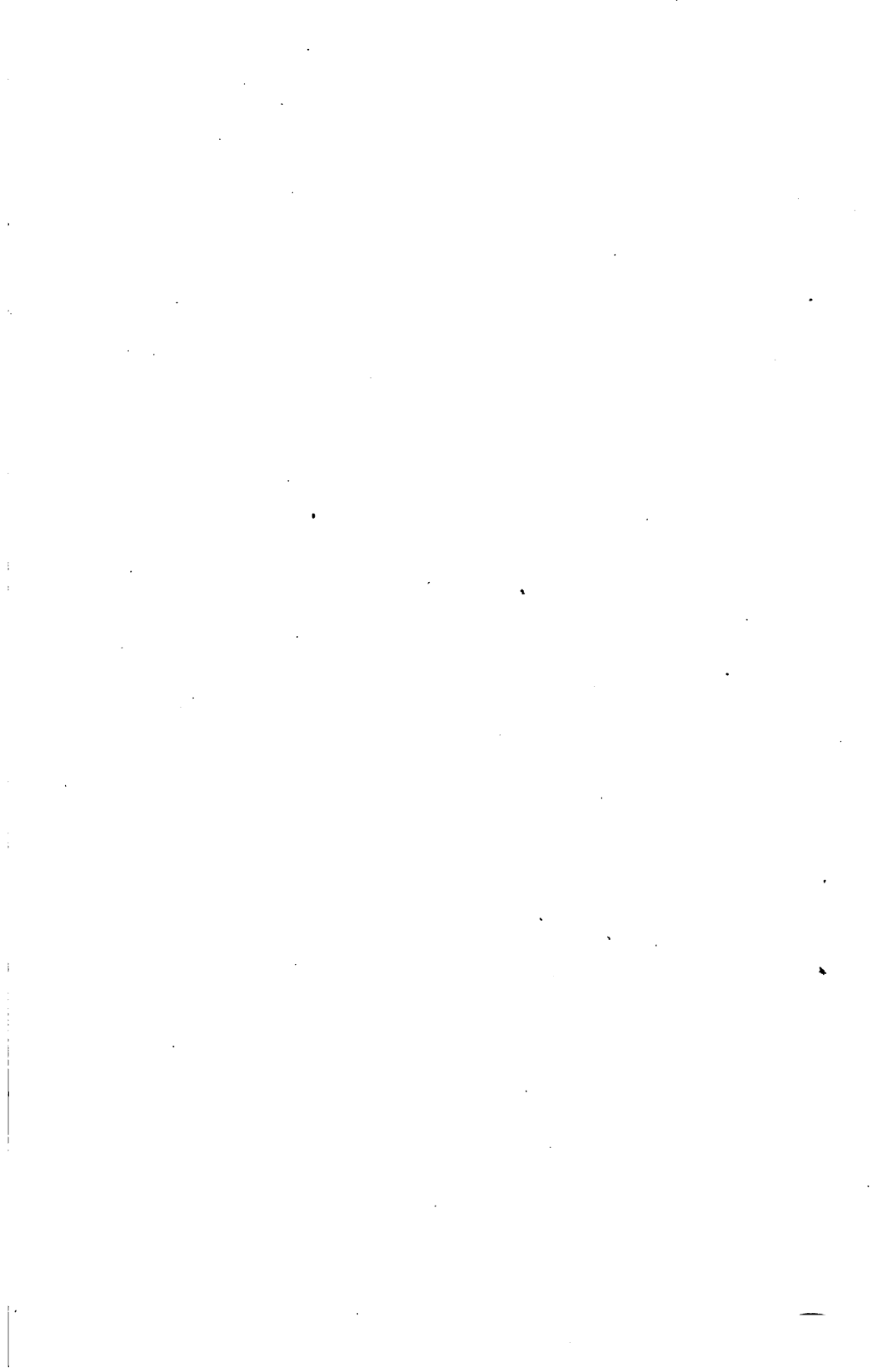
The circumference of the forearm is twelve centimetres; of the arm, eleven centimetres; the movements being slow, feeble, and poorly co-ordinated. The bony configuration shows no evidence of rachitis; the heart-sounds are normal, the respiratory sounds clear, and the abdominal viscera seemingly normal. She eats a normal amount of food, but does not masticate it.

The head is well ossified, the biparietal measurement being fourteen centimetres; the bifrontal, ten; the occipito-frontal, sixteen; the occipito-mental, 19.50; the fronto-mental, sixteen; the occipito-mental circumference, fifty-five, and that of the occipito-frontal, forty-eight. The teeth of the first dentition are badly decayed, the lymphatics at the angle of the jaws and behind the sterno-cleido-mastoid somewhat enlarged. The tonsils are much enlarged. The child weighs twenty-two pounds four ounces.

The mental condition of the child is of interest. She will smile upon hearing soft music, and laugh aloud if the music is lively, or at a jingling toy, or when others laugh. The attention is excited by strangers and strange voices. She enjoys being bathed or caressed, the romping of other children, etc. Is not peevish or impatient; the only display of temper noticed by the nurse being when mydriatic was dropped in the eyes. She has cried three times, twice being after the mother's visits. She puts her arm about her little brother, and feels his face as if trying to distinguish his features. She mutters, but does not articulate.

From the report of Dr. Marshall, who examined the ears, nose, and throat, I learn that the ear-drums were slightly thickened and intact, slightly retracted, but freely movable. The throat and nose present no noteworthy abnormality.

The mental condition made examination of the eyes difficult; the child lay with half-closed lids, and objected vigorously as she could to being touched, but there was evidently a moderate degree of concomitant convergent strabismus, and, though there was a myotic pupil, repeated trials convinced me that it responded to a moderate degree, and with not greatly subnormal rapidity, to sudden light-stimulus. From the histologic examination, Dr. Gray can hardly see how it was possible for the perception of light to have existed, on account of the atrophy of the optic nerve-fibres; but unless she had "a sixth sense" to tell her of the light-reflection otherwise than by the eye, I shall have to stick to the report of my own sense of sight. Some of the fibres that took the stain must have escaped both atrophy and observation as "not extending into the chiasm." Many times and ways did I endeavor to make sure about the test of light-reaction, because, if possible, it was of course important to determine this fact before attempting operation. The history of the condition of the patient as taken from the hospital records, says that both children "seem to appreciate light to some extent;" and Dr. Beyea, the resident physician, and the nurses on duty at the time, agreed with me that there was a quick, decided turning of the head when a bright light was suddenly thrown in the eyes. Upon this and the slight iris-contraction I concluded to try needling the lenses, with far from a strong hope that some little increase of vision might be gained, to help the struggling mind and give it another hold on the world. I could not make up my mind as to what were the exact conditions of the lenses. I had thoroughly



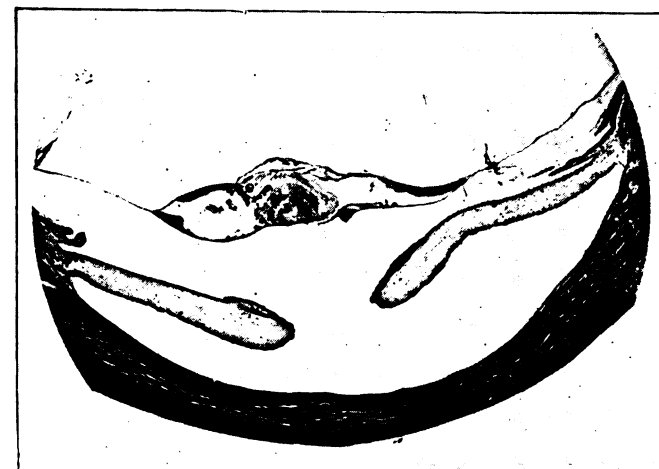


FIG. 6.—Section of anterior portion of eye, showing hyaline degeneration of lens. $\times 50$.



FIG. 7.—Hyaline degeneration of lens. $\times 200$.

mydriaticized the eyes and gained but a scant one-third of the normal pupillary enlargement,—about three millimetres, I should judge. The iris, however, seemed to be only inert, not bound by synéchia. The anterior capsule was of a dead-white, lustreless color, not uniformly convex, but somewhat uneven and irregular and flat; so that a partially or entirely absorbed lens with collapsed capsules was almost certainly present. In both eyes I found essentially the same unsatisfactory result. Neither the needle nor the sickle-bladed knife could be thrust through the capsule, which moved about almost as freely as a limp film of rubber in water. Shoving the sharp edge or point of the knife as quickly or as far to one side as I might safely do, was equally useless; there was too great elasticity and too little resistance to secure an appreciable opening. There was no considerable local inflammatory reaction following the operation, and the child recovered from the anæsthetic. In the light of this experience and the microscopical examination appended, it is obviously useless to attempt any relief of the ocular condition of the remaining child.

Shortly after this time, Professor Laplace performed linear craniotomy upon the child, who died within twenty-four hours after the operation. Securing one of the globes and the chiasm, through the courtesy and assistance of Dr. Laplace and Dr. Beyea, I sent the specimens to Dr. W. M. Gray, of the Army Medical Museum, whose report is appended.

MICROSCOPICAL EXAMINATION OF EYE OF MICROCEPHALIC CHILD.

Lens.—Occupies normal position and is held in position by the suspensory ligament. Capsule intact but partially collapsed, owing to destruction of lens substance (Fig. 6). Lens fibres have undergone complete hyaline degeneration; there is very little, if any, structure left, that could be recognized as lens-tissue; the fibres are broken up into a finely granular material, and into masses of a homogeneous substance, which vary greatly in size and shape; the greater part of this homogeneous substance is globular in shape, and of about the size of red blood-corpuscles; the remainder is of various sizes and shapes (Fig. 7).

Imbedded in the choroid coat of one side are a number of the so-called colloid bodies, which are quite frequently found in that position; these bodies are composed of homogeneous substance arranged in concentric layers; they vary in sizes, and occur singly or in groups of two or three; their nature and origin have not, I believe, been positively determined.

Retina.—The retina has undergone extensive granular degeneration; the rods and cones have disappeared entirely. The layer of nerve-fibres, ganglionic layer, and the two granular layers, are almost completely broken down. The nuclear layers are the most

prominent remains of the retina, but they have also undergone an extensive degenerative process. It is possible that this retina was never completely and fully developed; it has somewhat that appearance.

Optic nerve and chiasm.—The optic nerve was cut both longitudinally and transversely, and stained by Weigert's method for the demonstration of nerve-fibres. The chiasm was cut longitudinally and stained by the same process.

Neither in the chiasm nor in the nerves anterior to the chiasm can a single normal fibre be detected; the whole is completely degenerated and sclerosed. The transverse cuts of the optic nerve show an enormous increase of the interfunicular connective tissue. In the optic tract of one side are a few fibres which have taken the stain, and which have the appearance of normal fibres. They are very few; there are not more than three or four clumps, and each clump contains from two to six fibres; these fibres do not extend into the chiasm. The optic tract of the opposite side has undergone an extensive atrophy, and it is completely degenerated.

NOTES ON THE HOSPITAL TREATMENT OF PSORIASIS.

By HENRY W. STELWAGON, M.D.

THERE is no service for skin-diseases, I believe, in Philadelphia, so rich in well-marked, extensive, and advanced types of psoriasis as the skin-ward of this hospital. The mild form so often seen in ordinary dispensary and private practice rarely comes under observation here. On the contrary, it is the widely-diffused and inflammatory forms of the eruption, with more or less thickening, which make this ward a rich place for studying the treatment of the disease. The various new external remedies which are brought forward from time to time have all had here opportunity to demonstrate their usefulness, but have almost without exception proved of much less value than the remedies which have been in routine use for a number of years. The external treatment which has been the most successful here, and upon which reliance is placed, consists of alkaline baths, salicylated vaseline, tarry ointments, and chrysarobin applications. The particular plan adopted depends measurably upon the type and extent of the disease. First, however, a few words as to the constitutional treatment.

In my experience, and I must believe in the experience of others unprejudiced against the remedy also, nothing rates so high as arsenic. In the great majority of cases, and especially if it is the first attack, or if the patient has never before been placed under systematic treatment, the favorable effect of the judicious administration of this drug is often remarkable, the eruption clearing steadily and rapidly away. On the other hand, in cases in which the disease has recurred several times, and in which the previous attacks had been treated with arsenic, the remedy, as a rule, signally fails; or, at the best, makes an impression only when pushed beyond a reasonably safe dose. The proper dose is that which

stops just this side of active physiological or toxic action; that is to say, there is no reason to push the drug to the point of having such objective or subjective evidences of its action as puffiness about the eyes, injection of the conjunctivæ, disturbance of the gastro-intestinal tract, restlessness, or other nervous symptoms. In short, its good effect upon the eruption must not be at the expense of the general health. Rarely more than fifteen to twenty minims of Fowler's solution, or its equivalent of arsenious acid, should be given daily. A fact that has been experimentally noted here is, that the drug is more valuable and less apt to provoke disagreeable symptoms when given in small divided doses, as for instance, one to two minims every hour during the day (ten or twelve hours). Next in value is the alkaline treatment. This, however, is suitable only in individuals in robust health, and more particularly when the eruption is of the markedly inflammatory type. The alkalies which experience has shown to be the most trustworthy are liquor potassæ, potassium acetate, and potassium iodide; the first-named is given in ten to thirty minims, the second fifteen to forty grains, and the last ten to sixty grain doses, three times daily. The potassium iodide acts, I believe, as an alkali, and not in virtue of its being an iodine compound.

Another remedy referred to in one or two of the older books is the oil of copaiba. This has proved of benefit in several more or less extensive and obstinate cases, in the dose of twenty to thirty minims three times a day. It is not an important or generally useful one in the treatment of this disease, but it may be remembered as possibly of value in rebellious cases. It need scarcely be stated that in those cases in which debility is the apparent and probably real predisposing cause of the outbreak, cod-liver oil and similar nutrient and other tonics have a curative value.

The external treatment of the disease is all important and is really indispensable. In those patients in whom the disease, though extensive, presents itself as small pea- to dime-sized patches, a daily alkaline bath alone often suffices. The patient soaks in the bath (warm to hot) for fifteen to thirty minutes. The alkali used is sodium carbonate, four to eight ounces to the bath. If the skin after a few days begins to get harsh and dry, the general surface is lightly greased after each bath with salicylated vaseline; or this ointment, ten grains of salicylic acid to the ounce, may be so used as a routine measure. In cases in which the patches are

larger—dime to a palm size, or of greater area—the same plan is sometimes successful; if the improvement is slow, then after the alkaline bath, instead of greasing with the salicylated vaseline, a weak ointment of oil of cade, a drachm to the ounce, or the ordinary tar ointment weakened with two or three parts of lard, is to be thoroughly rubbed into the patches, and starch-powder or rice-flour freely dusted over. In the more obstinate cases, the tar ointment, officinal strength, or the pure oil of cade is used. This method of treatment—by alkaline baths and tarry applications—is an extremely valuable one; and it is only in a small proportion of cases that a more active plan becomes necessary. The objection to tar in private practice does not, of course, hold in hospital treatment; and it is yet, all things considered, in spite of the various new remedies brought forward to supplant it, the best all-around external remedy we possess.

The plan of external treatment adopted in rebellious and obstinate cases is that consisting of applications of chrysarobin. There are three methods of applying this valuable remedy,—as a paint, as a powder, and as an ointment. The paint, the most elegant, but, comparatively speaking, least active of the three, consists of a drachm of chrysarobin, forty grains of salicylic acid, a fluid-drachm of ether, ten minims of castor-oil, and an ounce of collodion. A more elegant and more active paint is made with the solution of gutta-percha, in the same proportion as above, omitting the ether and castor-oil. Gutta-percha solution is, however, too costly for hospital use. As a powder, the chrysarobin is prescribed in chloroform, a drachm to the ounce, and painted over the patches; the chloroform evaporates, leaving a thin film of chrysarobin powder, over which, in order to fix it, is painted a coating of pure collodion. The collodion paint is that which I have most frequently employed here. It is painted on with a fine brush about once every two to four days, depending upon how long the coating remains intact. In extensive cases the diseased surface is gone over gradually from day to day. The alkaline baths are used as a preliminary measure to free the patches from scalliness, but are not used during the period of active painting. The coating loosens in a few days, and may be picked off and a repainting made; or, if parts of the film crack and become detached, then a new coating may be made over the remains of the old; or, at the end of several days or a week, the baths may again be used

for a few days to aid in loosening the collodion films, as a preliminary to another thorough painting. The method by chrysarobin ointment, while the least pleasant, is the most effective of all; it is employed when energy of action is desired, or for the reason that it is less costly than the paint. It is to be well rubbed into the diseased areas immediately following the alkaline bath. All methods of using chrysarobin produce more or less temporary staining, and after several applications may provoke a mild or even severe dermatitis; on the first evidence of the latter the applications should be suspended, and the alkaline baths and salicylated vaseline advised. As soon as the irritation has disappeared the chrysarobin applications are resumed, usually in weaker strength. These undesirable effects—the staining and dermatitis—are much less likely to occur with the paint than with the ointment. The good effect of the chrysarobin treatment is shown by a gradual paling of the areas of disease, and when the inflammatory hue and thickening have entirely disappeared, the applications should be discontinued, to be resumed again if the patches are found still active or incompletely removed.

NOTES ON *TINEA CIRCINATA*, *TINEA SYCOSIS*, AND *TINEA TONSURANS*.

By J. ABBOTT CANTRELL, M.D.

WHILE ringworm ordinarily yields to appropriate measures, yet we are often placed in a difficult position owing to its presence upon the scalp, where the treatment is generally so unsatisfactory in its results; and while we are likely to have these conditions arise, we are also obliged to use our every means to combat them.

We are indebted to the trichophyton fungus (*trichophyton tonsurans*) for three forms of ringworm,—namely, *tinea circinata*, *tinea sycosis*, and *tinea tonsurans*, all of which present different conditions as seen upon the surface of the skin, although the same conditions are progressing beneath it.

Tinea circinata, the most common of these, is seen more often in the practice of the general practitioner than that of the specialist, and it is often easy to cure. Ordinarily, the diagnosis of this form is perceptible at first sight, but occasionally it resembles closely some other form of skin disease, from which the diagnosis is difficult without the use of the microscope.

At first it is seen as a pin-head sized, circular, well defined, slightly raised spot, which soon scales and spreads upon the periphery; and without treatment the disease is likely to reach great proportions, as it spreads upon the periphery, either clearing or not in the centre, the edges become thinner, and the lesion perhaps coalescing with another in the vicinity, forming a gyrate figure, the border of the ring being either papular, the general rule, or vesicular, or even pustular. As Crocker states, it does not tend towards symmetry or regular arrangement, and is likely to be found on exposed portions of the body, as the face and neck, the hands and wrists, only occasionally being witnessed elsewhere.

The following is the report of a case of *tinea circinata* *cruris* that happened in my clinic:

A man, twenty-nine years of age, a hostler, presented himself on the 15th of December last, showing an eruption upon the chest and abdomen, saying that it had lasted for the past two months, it never having been treated. He says that it began as a small, reddish, raised spot, very itchy, and that it spread peripherally until it reached the proportions now existing; then it remained at a stand-still.

One lesion is situated upon the chest, which is devoid of hair, being irregular in outline, its upper border being marked by the clavicle, and the lower by the umbilicus, and the sides to one inch outside of the nipples, the whole surface being brownish-red, with here and there a vesicle around the borders of the patch.

Another lesion is situated upon the abdomen, the upper border being just slightly below the umbilicus, and the sides being limited to a line upwards from the middle of Poupart's ligament, the lower portion dipping down on the femoral tissues and over the genitalia. The surface of this lesion was much darker than that upon the chest, being itchy. There were no lesions elsewhere. This case is reported to show the extent of surface that may be affected.

As *tinea circinata* often resembles eczema, we exclude this disease generally, because the inflammation in ringworm is generally more acute; by having, also, no history of discharge in *tinea*, a general rule with eczema, the edges of a patch of eczema are flat and fade imperceptibly into the surrounding healthy skin, while in ringworm the edges are raised and sharply defined, and in conjunction we may also have a history of contagion.

Seborrhœa is not generally an acute disease. It is more prone to great scaling; and while on the chest it may be circular, we do not have the greasiness in a case of ringworm.

The presence of psoriasis in other localities generally suffices to differentiate these two diseases; and in syphilis we have the history of an initial lesion, as well as a generalized eruption, enlargement, perhaps, of some glands, and no itching; and while syphilis tends to rapid destruction of tissue, ringworm does not, the localities often forming a decided point. The edges in a case of syphilis are generally more infiltrated.

At first the parts should be thoroughly cleansed with a carbolic soap or a carbolic solution, which may often prevent the progress of the disease, or at least the formation of new lesions; this process being more thoroughly gone through when the disease is upon the body, the clothing being boiled and laid aside.

Generally one of the milder parasitocides will give the desired result. The ordinary ammoniated mercury ointment of the Pharmacopœia, the officinal nitrate of mercury ointment, acetic acid, being careful when using upon the face, as here it often causes too much irritation; salicylic acid, resorcin or aristol in about

five to fifteen per cent. ointment form or solution; oleate of mercury or copper in five per cent. strength; sulphate of zinc about ten per cent. strong, or the bichloride of mercury in solution, two to four grains to the ounce, being careful in whose care it is placed; and when the disease is exceedingly rebellious, some stronger applications may be demanded, such as pyrogallic acid or chrysarobin (improperly chrysophanic acid), ten to fifteen grains to the ounce, being exceedingly careful in the use of the chrysarobin about the face, as it may cause a very violent iritis.

Tinea sycosis, known ordinarily as the "barber's itch," affects the hairy parts of the face and neck, beginning as a round, reddish, scaly spot; in fact, as a *tinea circinata*; the redness and desquamation soon becoming more pronounced, with the formation of small pustules in one case and of furuncular-like lesions in another, the latter being the so-called kerion form of Crocker. The hairs are also seen to be affected, being dry and brittle, and seem to be broken off in places. When suppuration has intervened, the hairs may be loose and easily extracted; in fact, in places they have fallen out, leaving the face with patchy bald spots. When the suppuration is active and the discharge great, with crusting, the original disease is often marked, and is with difficulty diagnosed from *eczema*.

The itching and pain varies with the intensity of the process, never, as a rule, being decidedly great. This disease, generally arising in a few weeks, according to Duhring, may spread or subside into an inactive state, the process lasting months or years, if not properly cared for.

The following case is an example:

A man, thirty-three years of age, came to the clinic on January 16th, having had the present eruption for the past four months. He says that it began as a small red pimple, tipped in a short time with a white head, on the left cheek near the angle of the jaw. This soon formed into a large boil, size of hickory-nut, and breaking, oozing pus, which dried into a crust. It began to spread, until now there are six or seven large hickory-nut sized tubercular lumps on the left side of neck, while on the right side there are four or five smaller lesions. The hairs have fallen out, leaving a number of patchy bald spots on the left cheek; a number of hairs were withdrawn easily at this time and showed their diseased condition.

Tinea sycosis may be diagnosed from the non-parasitic *sycosis*, because in the latter we do not have the induration and lumpiness; it is less rapid in its formation than the former. The disease does

not lie in the hair, which is firmer in its bed in non-parasitic sycosis, and withdrawn only by the aid of traction, causing considerable pain, while in the former the hair, being the diseased structure, is withdrawn easily and without pain. *Tinea sycosis* is rare upon the upper lip, a usual site of the non-parasitic sycosis.

Pustular eczema is not so rapid in its progress; it is decidedly itchy, with a history of great discharge and quantities of crusting, while in the parasitic sycosis the itching is almost nil. We have the tubercular formations, the dryness, brittleness, and looseness of the hairs, and possibly a history of contagion. In fact, the histories generally differ so widely between these two offenders that they are seldom confounded.

The treatment of *tinea sycosis* differs little from that of *tinea circinata* in the main respects,—that of the destruction of the parasite. For this any of the remedies mentioned in the treatment of the latter disease will generally suffice, but here we have diseased hairs which must be removed as frequently as possible.

The man is ordered to shave every three or four days, only allowing the hair to grow long enough that the diseased hairs may be perceived and easily withdrawn by the depilating forceps,—the treatment by the application of the parasiticide being performed twice or thrice a day, as circumstances will permit.

Tinea tonsurans—ringworm of the scalp—which may try the patience of the most renowned observer, is indeed exceedingly difficult to cure, and then only by the combined effort of both practitioner and patient. It differs from the above-mentioned varieties only in its appearance upon the skin.

Beginning as a small, reddish papule around a hair, soon becoming a well-defined scaly patch, pale or grayish red in color, spreading peripherally, and as the fungus descends deeper into the tissues the hairs begin to show its effect upon them in their dry and brittle condition, a number of them being broken off and stubby. The lesions vary in size, the larger ones being much thicker, and have a sharp, well-defined border, and being scurfy they resemble a nutmeg-grater.

Crocker states that in fair-haired children the hairs lie close to the skin, being spirally twisted like the fibrils of wood, being also almost matted together.

At other times small pustules may be seen through the patch, or it may go still further, forming the so-called *tinea kerion*.

It is essentially a disease of childhood, there having, as far as I know, been only one case reported wherein it was seen in the adult, another being reported here by myself, although only briefly.

A young man, salesman in a hat store, where he was in the habit of placing hats on his head to show the goods, appeared at the clinic in January, 1889, showing a silver-dollar sized lesion upon the vertex of the head. It was circular, with the edges sharply defined, the centre being scurfy, or nutmeg-grater-like, the hairs dry, brittle, and stubby (broken off). The case being in an adult, the diagnosis was given guardedly until the hairs were examined under the microscope, when a positive diagnosis was given. After four months the case became a *tinea kerion*, which lasted about two weeks, ending in cure.

This disease when witnessed in children is generally a long-standing one, it generally taking at least one year to remove; while many cases are carried until the advent of puberty.

Alopecia areata, the only disease which *tinea tonsurans* may closely resemble, can be differentiated on account of the surface of the skin being entirely devoid of hair, and having a bright, shiny appearance.

In the treatment of a case of *tinea tonsurans* the head must be as thoroughly cleansed as possible; being cleansed every day, the hair cut close for about one inch outside of the affected patch, this will allow of free depilation.

An application of carbolic acid in an oily solution will assist in the prevention of the formation of new lesions and the contagiousness to another child.

Having taken all these precautionary measures depilation should be resorted to freely, every day if possible, the parasiticide, in ointment or solution, being applied thoroughly at least twice a day, a cap being worn to assist in the penetration and the prevention of contagion.

The same remedies mentioned in the treatment of *tinea circinata* may be applied here advantageously; but it will be found that they should be made stronger.

The following ointment, using equal parts of the ingredients, recommended by Alder Smith, and one which has given good satisfaction in my clinic, is as follows:

R *Acidi carbolici*;
 Ungt. hydrargyri nitratis;
 Ungt. sulphuris.

He recommends this in individual patches. The proportions of

the sulphur ointment should be increased according to the age of the child and the state of the ringworm.

Van Harlingen says that when the parts are irritated and inflamed the following may be used advantageously :

R Ol. cadini
Sulphuris, aa \mathfrak{z} iss ;
Tr. iodi, $\mathfrak{f}\mathfrak{z}$ iss ;
Acidi carbolici, \mathfrak{m} xx—xl ;
Adipis benz., \mathfrak{z} iv.

Alder Smith speaks very highly of the artificial production of tinea kerion by the action of croton oil upon a small portion at a time. This must be used with exceedingly strict care.

Those patients who seem to be ill-nourished should be given tonics, such as cod-liver oil, arsenic, iron, or strychnine, as circumstances will permit.

LIBRARY OF THE PHILADELPHIA HOSPITAL.¹

DR. D. HAYES AGNEW, in an address delivered in 1862 at the Philadelphia Hospital, which, from the beginning until that time, and since, has been connected with the Almshouse, said: "This is the oldest hospital on this continent. In 1732 it was in operation, fulfilling a routine of beneficent function in affording shelter, support, and employment for the poor and indigent—a hospital for the sick and an asylum for the idiotic, insane, and orphans. It was thus dispensing its acts of mercy and blessings when Pennsylvania was yet a province and her inhabitants loyal subjects of Great Britain, more than twenty years before a school of medicine was founded in this city, and, indeed, before most of the great events which have given to the American people historical importance among the nations of the earth."

EARLY LOCATIONS.

It is matter for notice and congratulation that the city Almshouse was, according to all probabilities, finished in 1732, and that the hospital for the sick and miserable, in which were received the poor who could not otherwise have obtained satisfactory medical or surgical attention, was opened with it. The place where this charitable institution was first established was on the lot of ground bounded by Spruce, Pine, Third, and Fourth Streets. The building of brick, three stories high, had a piazza all around it. Trees were planted in the enclosure, and when they grew up the grounds were shady and made pleasant by grass and flowers. The money for purchasing the ground and erecting the building came from a grant made by the General Assembly of one thousand pounds. The lot cost only two hundred pounds, and the rest was sufficient to erect the structure. The establishment was under control of the Guardians of the Poor, and the cost of maintenance paid out of the poor taxes. In 1764 a corporation, entitled the "Contributors to the Relief

¹ This account of the Library of the Philadelphia Hospital is condensed from one that appeared in the *Public Ledger* for January 27, 1888.

and Employment of the Poor in the City of Philadelphia," was authorized to govern the Almshouse. They resolved to remove the establishment. To show how the value of property had increased in thirty years, they paid eight hundred pounds for a lot, at that time considered far out in the suburbs, between Spruce and Pine and Tenth and Eleventh Streets. They erected three very extensive buildings. After the Revolution the corporation of "Contributors" failed to attend to their duties, and the "Guardians of the Poor in the City of Philadelphia" were placed in control, the means of support of the paupers being raised by taxation. In 1828 another corporation, entitled "Guardians for the Relief and Employment of the Poor," was created by the Legislature, and in the same year they bought one hundred and eighty acres on the west side of the Schuylkill, north of the Woodland Mansion, bounded on the northeast partly by Spruce Street and the Darby Road. The four great buildings there erected were temporarily occupied during the cholera of 1832 by patients removed from the Spruce Street house. In 1835 the buildings were completed and occupied.

THE BEGINNING.

The hospital was supplied from the beginning with the services of the most distinguished physicians and surgeons of the time. They gave their care and attention to the suffering without charge, and there never has been a time during which the staff having in charge the sick was not competent to deal with every case which came into the house. Thus amply provided for in the personal knowledge and experience of the resident and attendant physicians, the almshouse for seventy-six years was without a library. The practitioners there were compelled to rely upon their own books, if it was necessary to study the peculiarities of particular cases. It was not until 1808 that the Guardians of the Poor, then in management, came to the conclusion that it was necessary that there should be a library of medical books attached to the institution. In that year they made an appropriation from their funds of one hundred and fifty dollars towards the purchase of books. Two years afterwards a similar sum was granted. In addition, sums were set aside for the same purpose from fees derived from clinical instructions from the students in the Medical Department of the University of Pennsylvania, and afterwards

from other colleges. In 1824 the managers passed a resolution appropriating two hundred dollars.

From that time for many years there were occasional grants of money. The collection was at first kept for the accommodation of the house physicians. In 1815 it was ordered that free access be given to physicians and students who should attend the practice of the house for two years; also, to the private students of the medical officers of the institution. At that time there was only one other medical library in the city, that of the Pennsylvania Hospital; and it is likely that the books on the shelves of that ancient institution were no greater in number than those at Tenth and Spruce Streets. Shortly after 1808, the senior student, who filled the position which in the Pennsylvania Hospital was held by an apprentice, was appointed librarian. In 1816 the apothecary became the librarian. A catalogue was prepared in that year which contained the titles of ten hundred and twenty-two volumes.

THE INCREASE.

The first important donation came in 1827 from Dr. William E. Horner. It consisted of one hundred and twenty-three theses from Edinburgh. In 1831, Dr. E. F. Rivinus, one of the resident physicians, compiled a new catalogue, which was the only one ever printed, and which proved the library to be especially rich in works upon ancient medicine and surgery. Indeed, the treasures in the way of old books were for a time an object of boast by the friends of the institution. They spoke of its great value as a library of reference. Dr. Agnew, in 1862, said that it was "the finest collection of ancient medicine and surgery probably to be found anywhere." There might be but little dispute about the allegation at that time. Twenty-five years ago the library of the College of Physicians contained possibly no more than twenty-five hundred volumes. The great acquisitions of rare and valuable old books have come since, resulting from the liberal gift of Dr. Samuel Lewis and others. At the present time the Philadelphia Hospital Library has gone far behind, and its valuable books are comparatively few. This misfortune has partly followed the collection in consequence of the want of care in guarding the books. Persons have borrowed without leave or borrowed and forgot to return, so that many valuable works once known to belong to the library are no longer on its shelves. Dr. Agnew,

in his sketch before mentioned, alluded to these losses, and said that the "library had been plundered by vandalism, to which it has been exposed, of much valuable matter."

RARE BOOKS.

In November last, the library by actual count was found to contain thirty-nine hundred volumes. Among the rare works in the collection are Jeaniss Schuckii a Graffenberg "*Observationem Medicorum Ruricorum*," published at Francfort, 1665, "*System of Anatomy*," by Samuel Collins, 1685. This is in two volumes, which were presented by Professor William Gibson, of the University of Pennsylvania. There is an old volume of printed theses, forty or fifty in number, by Bayer, Boch, Boerhave, Haller, and others ranging in date from 1718 to 1729. Other volumes contain fifty papers published between 1720 and 1729. Others are "*Lazari Riveru*," 1737; Joannæ Damile Horstio, and Jacobi Grandii, Geneva, 1737; "*System Einer Volstanigen Medicinisch Polizey*," Francenthal, 1793; "*Hebdomadaire de Médecine*." There are four complete editions of Cuvier's works on natural history, and two complete editions of Buffon, in French; also four editions of the works of Linnæus, the great naturalist, and two of Van Swieten on medicine. The "*Universal Journal of Medicine*," French, takes up sixty volumes, and the "*Dictionnaire de Médecine*" twenty-five volumes. There is a fine old copy of the works of Hippocrates. One of the most valuable illustrated works is "*Anatomie de l'Homme*," etc., par Jules Cloquet, published in six volumes in 1828, which is very scarce.

There are many more books of value and importance which are considered standard. They cover all the fields of medical and surgical knowledge, including anatomy, pathology, *materia medica*, physiology, histology, nervous, digestive, and respiratory diseases, midwifery, obstetrics, and a large representation of treatises on the subdivisions and specialties into which the study and practice of medicine are now divided.

The collection is stored in an apartment on the first floor at the northwest corner of the hospital building, which is the northernmost structure in the quadrangle of great buildings erected in Blockley, in which are lodged and cared for the city's poor, the city's sick, and the city's insane, and in which at one time have been kept, as in an asylum, the city's abandoned children.

RECENT ADDITIONS AND IMPROVEMENTS TO THE PHILADELPHIA ALMSHOUSE.

SINCE the publication of Volume I. of the "Philadelphia Hospital Reports," numerous additions and improvements have been made in various departments of the Almshouse. The following extract from the Report of Charles Lawrence, Esq., the Superintendent, to the President and Directors of the Department of Charities and Correction, summarizes the most important improvements during 1892:

"We were deprived of the use of the new buildings of the Insane Department by reason of the large quantities of water in the cellars under the female ward building, under the scullery and in the engine-room under the kitchen, until May 6th. In order to remedy this, it was found necessary to dig a well ten feet deep and six feet in diameter in one end of the cellar under the female ward building, and make ditches the length and width of it to drain the water off the floor. This required considerable labor, as the concrete covering was very hard to cut through, and under it was found rotten rock as far down as we dug. A pipe was laid from the well to the steam-pump in the engine-room, and the water is pumped out as fast as it runs in. The well and ditches are covered with heavy hemlock plank to prevent accidents.

"A considerable amount of work had to be done after the buildings were accepted from the contractors. Two large rooms intended for the attendants to occupy did not have any partitions in them to form separate rooms. The connecting platforms between the ward buildings and the lavatories were open on the sides and tops, and no provision had been made for clothes-rooms in any of the wards. We built the partitions in the rooms, enclosed the passage-ways to the lavatories, and put up the necessary shelving, etc., for the clothes-rooms.

"The additional accommodations afforded by the new buildings relieved the crowded condition of that department very much, but the steady increase in the number of patients, if it continues, will soon call for more room.

"The new dining-room and kitchen have been a great convenience, and added much to the comfort of the inmates of that department. Good hot food is served to them very quickly and with little or no confusion.

"The new laundry was completed and put in operation January 25th, since which time it has been of great service. The washing of such institutions as this is a very important matter, and requires all the facilities obtainable. The old buildings formerly used for the purpose have been demolished, and the appearance of the grounds much improved.

"The isolating building has been erected on the ground selected, and deserves more than passing mention. It is entirely original in design, built of brick, one story high; it is eighty-eight feet in length and twenty-six feet wide, with an enclosed porch of wood and glass around one end and the two sides. A brick partition wall, extending to the roof, is built lengthwise through the centre, dividing it into two halves, one for males and the other for females. These parts are divided into rooms by a brick partition running to the roof, so that each room has a brick wall around the whole four sides. Doors open from each room to the porch, and there is no communication from one room to another. The floors are cement, and the walls and ceilings are covered with adamant cement, to be painted. A register in each room furnishes the necessary heat, and the ventilation is secured by a ventilator through the ceiling and roof of each room, together with the windows and movable transoms over the doors. There are two rooms for the nurses at one end and two for bath-rooms, lavatories, etc., at the other, with seven on each side for patients, all supplied with gas. The floors are four feet above the ground, and, as the walls are built with arches, a free circulation of air is secured under them.

"The maternity wards were much improved by building an addition which connected the two buildings, and added a much better room than any they had before. These buildings had previously been heated from a boiler located alongside. This was a very expensive plan, for, aside from the cost of coal, two men were required—one during the day and the other at night—to attend to the fire. Pipes have been laid to the hospital cellar and connections made to the main steam-pipes, and now they are heated from the main boilers and considerable expense saved.

"During the summer of 1891 the exterior of the old clinic hall was repaired and plastered, and a new roof with iron girders and skylight put on. During the summer the interior was torn out and remodelled. New ash seats with walnut caps on the backs were put in, the operating floor was laid in cement, and the partitions faced with white glazed tiles. The steam-pipes were put under the seats, and the iron steps with open risers allow the heat to enter the building freely. The medical staff were so much pleased with the improvements made that it was thought proper to have the re-opening made an event in the history of the institution. The ceremonies were under the direction of a committee of the medical staff, and Hon-Edwin S. Stuart, Mayor of Philadelphia, presided on the occasion. Speeches were made by his Honor the Mayor, Dr. Curtin, the Chairman of the Medical Staff, the President and Directors of the Department of Charities and Correction, and others. It was very gratifying to me to hear it said, 'This is now the finest clinic hall in the country.'

"The erection of a stone wall around the institution was continued during the year, and we now have it completed from the new bath-house of the female insane department along the line to Guardian Avenue, thence to Thirty-sixth and Pine Streets, down Pine to Thirty-fourth Street, and down Thirty-fourth to Vintage Avenue, a distance of more than twenty-three hundred feet. As Councils appropriated three thousand dollars for the continuance of this work during 1893, it is hoped that the wall will be completed along the major part of the front of the buildings during the coming summer.

"During the year we had 1121 square yards artificial stone pavement, 469 feet artificial stone curbing, 359 square yards granolithic pavement, 370 square yards Trinidad asphaltum pavement, and 181½ square yards Neuchâtel pavement laid by

contract. In addition, the men belonging to the institution put down 973½ square yards artificial stone pavement. There have also been 558 square yards plastering put on outside walls by our own labor."

Much additional work in the way of improvements and repairs was accomplished, and is referred to by the Superintendent. It included the putting up of partitions, changing of walls, painting, plastering, laying new floors, and other necessary improvements in the insane department, hospital department, women's outwards, and children's department; also repairs to the farmer's house, stables, and boiler-house.

THE INSANE DEPARTMENT DURING 1892.

THE following extracts relating to the Insane Department, from the Report for 1892 of Dr. Daniel E. Hughes, Chief Resident Physician, will prove of interest :

"The admissions were 497, of which 251 were males and 246 females, the largest number of admissions in many years. Of the number admitted, 65 females were patients returned from the State Hospital for Insane at Danville, Pennsylvania, where, owing to a lack of accommodations here, they had been supported by the city of Philadelphia since the following dates : from November 12, 1884, 28 ; from February 15, 1885, 15 ; from March 16, 1885, 22. The total insane population to-day is 1010, of which 496 are males and 514 females, an increase of 119 patients over the total of one year ago. The average daily population during the year was 946. The total number of patients under treatment during the year was 1388.

"On the 6th of May the four new wards were occupied for the first time, and gave relief from the then over-crowded condition of the department ; but, to-day, the wards, twenty in all, have a population of one hundred or more than their hygienic capacity ; and, as it may be confidently assumed that the demands upon this department of the institution will increase from year to year as the causes of insanity continue active and the population of the city becomes greater, we are again confronted with the problem of over-crowded wards, interfering with the proper classification of patients, and embarrassment in the medical administration of the department. Should the admissions during the coming year keep pace with the year closing this day, the population one year hence will be nearly twelve hundred, a number greater than we can take care of with our present accommodations. It is this condition of affairs, and the knowledge that this department must continue to meet the demands of this community for the care of the indigent insane as they arise, that warrants my asking your consideration of the following recommendation, viz. : the erection of two infirmary or hospital buildings for male and female patients respectively, each having a capacity for not less than a hundred patients. Such an addition to the department would permit our using wards five and ten on each side for able-bodied patients, thus allowing ample accommodation for twelve hundred patients, which number should be the limit of the department. If the recommendation meets with your approbation, I would suggest as a proper location for such buildings the ground to the southeast of the male wards, across Vintage Avenue. This location would not in any way decrease our present very small airing courts. It would have the additional advantage of being separate from the present buildings and of allowing air and sunshine to reach all portions of the buildings.

"The health of the department has not been of the best during the year, and as

a result our mortality has been greater than for many years. The death rate in a pauper insane hospital is always, to a certain extent, accidental, depending greatly upon the ages of the patients, their bodily condition, and their mental diseases, having to provide and care for all classes of mental deficiency, the acute and chronic, violent and infirm, the seniles, idiotic, imbecile, epileptic and parietic,—in one class of cases furnishing medical treatment for the gravest forms of human affliction, while in another very large class of cases providing them with a refuge and retreat,—in the one case a hospital, in the other an asylum. In December, 1891, the department was visited by a second epidemic of 'la grippe,' which continued with severity until late in February, adding to our mortality directly, and leaving its debilitating effects on many who succumbed ere the year closed. Again, in May the then prevailing epidemic of dysentery broke out in the wards, and it, together with the heat of the unusual summer, added materially to our death rate, carrying off many afflicted with chronic maladies. Among the causes of death were: acute dysentery, 25; consumption of the lungs, 53; chronic Bright's disease and uræmia, 38; acute pneumonia, 15; and chronic heart disease, 8. Of those dying, 106 were over fifty years of age, 22 over seventy years of age, and 6 over eighty years of age; 63 had been patients in this department over five years, 1 for over twelve years, 1 over twenty-two years, and 1 over thirty-one years; while, on the other hand, 15 died within one week of admission, 10 of these dying within three days of their admission.

"During the year post-mortem examinations were made on 18 male and 19 female bodies.

"The number of patients discharged during the year was 182, of which 99 were males and 83 females, a larger number than for any other year. Of those discharged, 62 males and 52 females had recovered. Of those discharged recovered, 57 were under treatment less than six months, 22 between six and nine months, 11 between nine and twelve months, and 24 for periods varying between one year and five years. Four patients were discharged restored after a residence of over five years. These four patients were as unpromising as any in the department, and I am fully convinced that the final restoration is due solely to our finding employment suitable for them, and under the most disadvantageous circumstances insisting that they continue employed. Over six months have elapsed since their discharge, and I am fully advised of their continued good health.

"In May the new associate dining-halls were first occupied, and have since been regularly used by an average of 370 male and 340 female patients, who are taken to and from meals in a processional order three times daily, patients having regular seats, and being allowed to wait upon themselves and companions. All that was anticipated from the changes incident to this plan of feeding the patients has been more than realized; the patients are better cared for, the meals are better served, the wards are freed from food odors, the supply better managed, the waste reduced to a minimum, thus lessening the cost while improving the character of the meals; while the moral effect upon the patients easily disturbed or made violent has been most salutary, and the acute cases have been wonderfully influenced and their recovered hastened, and last, but far from least, the caring for so large a number of meals has greatly increased our opportunity for usefully employing those who would otherwise remain idle. Permit me to offer two suggestions bearing upon this portion of the department. The first is the removal of the part partition or fence separating the male and female dining-halls; such a change will, I believe, add greatly to the favorable influences of this plan of caring for the patients at

meals. The second suggestion is the abandonment of the tunnels leading from the wards to the dining-halls. These are failures. They are damp, close, and gloomy; the vitiated air with which they are saturated is detrimental to the health of the patients using them, and from their manner of construction it seems impossible to properly ventilate them. In their stead construct a roof or cover over the present cement walk, extending the roof far enough over the sides to give protection from the sun or inclement weather, and, if no sides be used, the covered way will answer nicely for a summer house, under which patients may rest during the hot summer days.

"I take this opportunity of setting forth the advantages that would accrue to the patients if they could be furnished with suitable employment. It has been conclusively determined by experience in many hospitals for the insane that a systematic method of employment is available in cases of chronic mental defect, heretofore considered incapable of any organized effort, while in sub-acute cases it actually hastens recovery, and in acute cases undergoing convalescence it is a most valuable adjunct to other treatment."

SOME NOTES AND REFLECTIONS ON LIFE IN THE PHILADELPHIA ALMSHOUSE.¹

BY JOSEPH W. ENGLAND, PH.G.

ON admittance, the name, age, social state, occupation, birth-place, and names of friends are taken by the house agent, whose duty it is to keep a record or personal history of each inmate. From his office those admitted are distributed to the different departments of the institution,—the out-wards, the hospital, or the insane department.

They pass through what is termed the “receiving ward,” where their clothing is exchanged, new garments being given them, after they have first wrestled with a tub of water. Some object to water on principle; but their objections are overruled, and they are made to feel what some of them apparently have not felt for a long time before,—the invigorating and solvent action of fresh HO.

Inmates may be classed as good, bad, and indifferent. In an institution of this magnitude, it is manifestly impossible but that some unworthy to be the recipients of the city’s charity will gain admission; but at the same time it must be acknowledged that there are an immense number, and by far the larger portion, to whom this generous public aid comes as a godsend. A majority of them, especially in the out-wards, are old men and women who have passed the meridian of life, and a few are nearing the century line. Some have been inmates for ten or fifteen years, and yet, strange to say, they are satisfied, content to drift along until the end. They are well clothed, well fed, and have comfortable beds to sleep on; and what more, in their opinion, could

¹ These remarks are taken from an address read by Mr. England, who is chief apothecary of the Philadelphia Almshouse, at the fourth social meeting of the Alumni Association of the Philadelphia College of Pharmacy, January 8, 1889, and published in the Twenty-fourth Annual Report of the Alumni Association.

any one want? Then habit and association have a great deal to do with their content. They come in at first strangers, old and infirm; they contract friendships and become cronies, and as time rolls on their inclination to leave becomes less and less, so that ultimately they are permanent fixtures. The story is told of a man who came to Blockley and became so contented that he refused to accept a home with a wealthy brother in California; preferring to stay where he was, where it was congenial. The institution had become to him a home.

We have our station-house, and I am sorry to say it is not always empty. Like some people outside, the inmates sometimes start to paint the town carmine. They get several hours' "liberty" or permission to go out, and come back exhilarated; they want excitement, and they get it; but it don't last long. It only lasts the time it takes to get to the lock-up. The next morning they wake to find their liberty stopped, and a ride to the House of Correction, or some other punishment, awaiting them.

As regards the living, there is probably no subject upon which the general public have more erroneous ideas. The rooms and beds are kept scrupulously clean; the food is plain, wholesome, and well cooked, and is far better than many received prior to their admission.

For the order of the day they rise at 5 A.M., eat breakfast at 5.30 A.M., dinner at 11.30 A.M., supper at 4.30 P.M., and go to bed at 8 P.M. Each inmate is compelled to make his or her bed and keep it in good order.

Those who cannot be utilized in general housework pass the time as it pleases them. If the day is pleasant, they may be seen in the yards, on the benches, smoking a quiet pipe; or perhaps you may witness the familiar scene of a group of hoary-headed old men earnestly discussing some political topic or bit of gossip as if their very lives hung in the balance; or a group in which the central figure is slowly reading aloud from an old newspaper. It is needless to say that he is frequently interrupted with exclamations of one or another kind.

If there is any one feature of your true Almshouse inmate which is peculiar, it is his apparent desire to go to church. How much he differs from outsiders! To him the more churches there are the better, so to speak. Out at Blockley he has a choice of four. Services are sometimes held twice a day, and it is amusing to

watch them as they march to service. All the old men are dressed in the height of Blockley's latest fashion, although they profess to hate dudes worse than snakes. They all carry canes, and such canes! Solomon in all his greatness never carried such canes as these canes! And if any new male attendant is so unfortunate that he hasn't a cane when he attends service for the first time, you may wager considerable that he does not attend again until he has complied with Blockley etiquette and brought his stick with him—even though it be only a broomstick.

And then the women! Well, they strive in their way to emulate the men and rival their sisters of the outside world. It is sad that in this case they cannot come in late and sail up the aisle in all the glory of a new spring bonnet or dress; but let any usual attendant come in with some bit of finery upon her person, and the matter becomes at once a subject of serious gossip among her less fortunate sisters.

But it is merely justice to say they enter most heartily into the spirit of the hour, and, though their voices at times may be harsh and discordant, their singing is not without charm, nor is the earnestness of the worship to be questioned.

The majority of those in the Almshouse have been brought there through intemperance. It is safe to say, directly or indirectly, fully seventy-five per cent., certainly of the men, have come there through the excessive use of intoxicants.

I once heard John B. Gough say that if he had a son to whom he wished to picture the ultimate effects of alcoholic excesses, he would take him not to the gilded palaces of Bacchus, but deep down in the slums, among the lowest of dives, where he could see the true results, unvarnished by any refinements of surroundings. I have since thought that he could have obtained the same results, even more surely, if he had visited our Almshouse and come in close contact with some of its inmates.

Dr. D. Hayes Agnew, the well-known surgeon, was showing a friend some years ago a number of finely executed drawings, when the friend exclaimed, "Doctor, these are fine! May I ask the name of the artist who drew them?" "Certainly," was the reply; "a pauper at Blockley;" and he added, "If you want anything done, no matter how intricate; if you want talent of any description, you can find it in the Almshouse." And the doctor was right. But what a sad commentary upon human frailty,

and what an object lesson it furnishes even to the most superficial observer!

* * * * *

But from a serious stand-point, what a vast field for character study of lowly life is here spread before us! How often have I longed for the keen, analytical brain, the warm, sympathetic heart, and the ready, trenchant pen of a Dickens to transfer to paper the heart throbbings of this little world. What past joys and sorrows, what past hopes and troubles, are held within its breast, never to be revealed. The days come and go, the sands of time swiftly run their hour-glass through; but life to many of them has lost its charms, and memory is the only friend they can call their own. They are like vessels stranded on the sandy beach, waiting for the incoming of the tide to break them into pieces and carry them out to sea.

The mass of the great world outside would feel better and more content from a knowledge of this little isolated world within their own.

CHRONOLOGICAL LIST OF THE MEMBERS
OF THE
Medical Boards of the Philadelphia Hospital
FROM 1768 TO 1893.
BY CHARLES K. MILLS, M.D.

[This list probably contains many omissions and not a few mistakes, as many difficulties have attended its preparation, in which have been consulted Dr. Agnew's "Medical History of the Philadelphia Almshouse," Thatcher's "Medical Biography," Ruschenberger's "History of the College of Physicians," the Catalogues of the Alumni of the Medical Department of the University of Pennsylvania and of the Jefferson Medical College, the Annual Statements of the Boards of Guardians of the Poor and of the Board of Charities and Correction, and the written minutes of the Governing Boards since 1859. Members of the Medical Board have also been personally consulted in efforts at verification. I shall be glad to receive any corrections or additions from any one who may examine the table.—C. K. M.]

MEDICAL STAFF.

Name.	Service began.	Service ended.	Remarks.
Cadwalader Evans . . .	1768		
Thomas Bond	1768	1779	
Adam Kuhn	1774	1776	
Benjamin Rush	1774	1777	
Samuel Duffield	1774	1801	
Girardus Clarkson	1774	1777	
Girardus Clarkson	1788	1790	
Thomas Parke	1774	1779	
George Glentworth	1779	1781	
D. Jackson	1779	1781	
James Hutchison	1780	1781	Out-door physician.
— Wilson	1780	1781	Out-door physician.
Caspar Wistar	1788	1790	
J. R. Rodgers	1788	1789	
Michael Leib	1788	1790	
John Morris	1788	1789	
Samuel P. Griffiths	1788	1789	
N. B. Waters	1789	1790	
William Shippen	1789	1790	

MEDICAL STAFF.—*Continued.*

Name.	Service began.	Service ended.	Remarks.
— Cumming	1795		
— Pleasants		1797	Date of appointment not known.
Samuel Clements, Jr.	1796	1797	
William Boyce	1796	1801	
Samuel Cooper	1796	1796	
John Church	1797	1805	
Thomas C. James	1797	1811	Transferred to Obstetrical Staff.
John Proudft	1801	1804	
Philip S. Physick	1801	1805	
Charles Caldwell	1801	1804	
Elijah Griffiths	1801	1810	
Benjamin L. Barton	1804	1805	
Samuel Stewart	1804	1810	
John Rush	1804		Elected, but declined to serve. Dr. Agnew mentions a Dr. Rush as resigning in 1821.
James Reynolds	1804	1807	
James Hutchinson	1805	1805	Served three months.
Isaac Cathrall	1805	1811	Transferred to Surgical Staff.
Peter Muller	1805	1811	Transferred to Surgical Staff.
John Syng Dorsey	1805	1811	
John Syng Dorsey	1814	1815	
Nathaniel Chapman	1807	1815	
Nathaniel Chapman	1822	1832	
Joseph Parrish	1807	1811	Transferred to Surgical Staff.
Samuel Stewart	1810	1822	
Joseph Klapp	1810		
Joseph Klapp	1815	1822	
Thomas Hewson	1811	1822	
Joseph Hartshorne	1818	1820	
Samuel Calhoun	1821	1822	
William P. C. Barton	1821	1822	
William E. Horner	1822	1832	Transferred to Surgical Staff.
Samuel Jackson	1822	1845	
John K. Mitchell	1822	1827	
Richard Harlan	1822	1822	Transferred to Surgical Staff.
Hugh L. Hodge	1822	1835	
Samuel George Morton	1827	1835	
Jacob Randolph	1832	1837	
William H. Gerhard	1835	1845	
Joseph Pancoast	1835	1837	Transferred to Surgical Staff.
William Ashmead	1835	1838	
William Ashmead	1841	1845	
N. Stuardson	1837	1838	
Robley Dunglison	1838	1845	
Edward Peace	1838	1841	
Meredith Clymer	1843	1845	

SURGICAL STAFF.

Name.	Service began.	Service ended.	Remarks.
J. Cathrall	1811	1822	Transferred from Medical Staff.
Peter Miller	1811	1822	Transferred from Medical Staff.
Joseph Parrish	1811	1821	Transferred from Medical Staff.
John Rhea Barton	1820	1822	
William Gibson	1821	1822	
J. V. O. Lawrence	1822	1822	
Richard Harlan	1822	1838	Transferred from Medical Staff.
William E. Horner	1832	1835	Transferred from Medical Staff.
Joseph Pancoast	1837	1845	Transferred from Medical Staff.
Charles Bell Gibson	1838	1840	

OBSTETRICAL STAFF.

Name.	Service began.	Service ended.	Remarks.
Thomas C. James	1811	1821	Transferred from Medical Staff.
John Moore	1818	1821	
Henry Neill	1821	1835	
Nathan Shoemaker	1821	1827	
Charles Lukens	1827	1827	
B. Ellis	1827	1831	
F. S. Beattie	1831	1837	
Charles Wistar Pennock	1835	1845	
William D. Brinkle	1837	1839	
Charles Bell Gibson	1838	1840	
Robert M. Huston	1839	1845	
James McClintock	1840	1841	
William H. Gillingham	1841	1845	

ADMINISTRATION UNDER CHIEF RESIDENT OFFICER.

PHYSICIAN-IN-CHIEF.

Name.	Service began.	Service ended.	Remarks.
H. S. Patterson	1845	1845	

CONSULTANTS.

Name.	Service began.	Service ended.	Remarks.
William Byrd Page	1845		Consulting surgeon.
Meredith Clymer	1845		Consulting physician.
N. D. Benedict	1845	1845	Consulting accoucheur. Office abolished November 9, 1845.

PHYSICIANS-IN-CHIEF.

Name.	Service began.	Service ended.	Remarks.
N. D. Benedict	1845	1850	
— Haines	1850	1853	
J. D. Stewart	1853	1854	
R. T. Coleman	1854	1854	
Archibald B. Campbell .	1854	1854	

ADMINISTRATION BY RESIDENTS-IN-CHIEF AND BOARD OF CLINICAL LECTURERS.

RESIDENTS-IN-CHIEF.

Name.	Service began.	Service ended.	Remarks.
Archibald B. Campbell .	1854	1855	
Robert K. Smith	1855	1856	
Archibald B. Campbell .	1856	1857	
James McClintock . . .	1857	1858	All the visiting physicians resigned soon after the election of Dr. McClintock, as clinical instruction was abandoned.
Robert K. Smith	1858	1859	

LECTURERS ON CLINICAL MEDICINE.

Name.	Service began.	Service ended.	Remarks.
J. L. Ludlow	1854	1857	
Robert Coleman	1854	1854	Did not accept election.
Caspar Morris	1854	1855	Transferred to Obstetrical Department.
Joseph Carson	1855	1857	
Joseph Carson	1858	1859	
J. B. Biddle	1855	1857	
J. B. Biddle	1858	1859	
J. Aitken Meigs	1858	1859	
Samuel Dickson	1858	1858	Declined on account of ill health.
J. M. DaCosta	1858	1859	

LECTURERS ON CLINICAL SURGERY.

Name.	Service began.	Service ended.	Remarks.
Henry H. Smith	1854	1857	
D. H. Agnew	1854	1857	
D. H. Agnew	1858	1859	
John Neill	1855	1857	
R. P. Thomas	1855	1857	
W. S. Halsey	1858	1859	
Richard J. Lewis	1858	1859	

LECTURERS ON OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

Name.	Service began.	Service ended.	Remarks.
R. A. F. Penrose	1854	1857	
R. A. F. Penrose	1858	1859	
Wilson Jewell	1855	1857	
Caspar Morris	1855	1857	Transferred from Medical Department.
E. McClellan	1858	1859	

MEDICAL STAFF.¹

Name.	Service began.	Service ended.	Remarks.
J. L. Ludlow	1859	1885	
William F. Maybury . .	1859	1861	
Charles P. Tutt	1859	1866	
Robert Sucket	1859	1859	
J. M. DaCosta	1859	1865	
O. A. Judson	1861	1863	
George J. Ziegler	1863	1867	Transferred from Surgical Staff.
Alfred Stillé	1865	1872	
J. S. DeBenneville . . .	1866	1866	
Edward Rhoads	1866	1870	
William Pepper	1867	1884	
H. C. Wood	1870	1883	Transferred to Neurological Staff.
James Tyson	1872	1889	
James Tyson	1893		Still serving.
John M. Keating	1875	1877	
John M. Keating	1878	1880	Transferred to Obstetrical Staff.
Edward T. Bruen	1875	1889	
James C. Wilson	1875	1889	
John Guitéras	1875	1880	
Roland G. Curtin	1880		Still serving.
S. J. McFerran	1880	1884	
J. T. Eskridge	1882		Elected, but did not serve.
W. G. McConnell	1882		Elected, but did not serve.
Joseph F. Neff	1884	1887	
John H. Musser	1885		Still serving.
William Osler	1885	1889	
F. P. Henry	1888		Still serving.
J. M. Anders	1889		Still serving.
William E. Hughes	1889		Still serving.
S. Solis-Cohen	1889		Still serving.
Eugene L. Vansant	1889		Still serving.
F. A. Packard	1892		Still serving.
Judson Daland	1892		Still serving.
Samuel Wolfe	1892		Still serving.
Julius Salinger	1892		Still serving.

¹ At this time the administration by a visiting medical board was resumed.

SURGICAL STAFF.

Name.	Service began.	Service ended.	Remarks.
Samuel D. Gross	1859	1865	
D. Hayes Agnew	1859	1865	
R. J. Levis	1859	1870	
R. J. Levis	1882		Elected, but did not serve.
Edward L. Duer	1862	1863	Transferred to Obstetrical Staff.
R. S. Kenderdine	1859	1865	
J. W. Lodge	1864	1868	
W. H. Pancoast	1865	1885	
F. F. Maury	1865	1878	Transferred from Obstetrical Staff.
John H. Brinton	1866	1882	
Harrison Allen	1870	1878	
Samuel W. Gross	1874	1882	
N. L. Hatfield	1875	1884	
J. W. White	1875	1889	
J. W. White	1892		Still serving.
William G. Porter	1875		Still serving.
A. A. McDonald	1878	1881	
W. S. Janney	1877	1890	
George McClellan	1880	1890	
A. S. Roberts	1881	1887	
W. Joseph Hearn	1882		Still serving.
C. H. Thomas	1882	1884	
A. W. Ransley	1885	1892	
Lewis W. Steinbach . . .	1885		Still serving.
John Blair Deaver	1887		Still serving.
Edward Martin	1888	1889	
Edward Martin	1892		Still serving.
Orville Horwitz	1889		Still serving.
Earnest Laplace	1889		Still serving.
James M. Barton	1890		Still serving.

OBSTETRICAL STAFF.

Name.	Service began.	Service ended.	Remarks.
R. A. F. Penrose	1859	1867	
John Wiltbank	1859	1859	
William D. Stroud	1859	1863	
Lewis Harlow	1859	1862	
George J. Ziegler	1859	1863	Transferred to Medical Staff.
A. H. Smith	1862	1864	
E. Schofield	1863	1870	
F. F. Maury	1864	1865	Transferred to Surgical Staff.
Edward L. Duer	1863	1883	Transferred from Surgical Staff.
R. M. Girvin	1865	1876	
J. S. Parry	1867	1876	
George Pepper	1870	1872	

OBSTETRICAL STAFF—*Continued.*

Name.	Service began.	Service ended.	Remarks.
J. V. Ingham	1872	1874	
W. A. Warder	1874	1881	
J. R. Burden, Jr.	1874	1876	
E. E. Montgomery	1877	1884	
E. E. Montgomery	1886		Still serving.
James B. Walker	1876	1880	Transferred to Medical Staff.
S. S. Stryker	1876	1889	
G. W. Linn	1876	1882	
M. B. Musser	1877	1887	
W. H. Parish	1876	1889	
John M. Keating	1880	1890	Transferred from Medical Staff.
Clara Marshall	1882		Still serving.
E. P. Bernardy	1882	1884	
Hannah P. Croasdale	1882		Elected, but did not serve.
Theophilus Parvin	1884	1892	
Donnell Hughes	1884	1884	
Elliott Richardson	1886	1886	
Barton C. Hirst	1887		Still serving.
Edward P. Davis	1889		Still serving.
William Easterly Ashton	1889		Still serving.
Robert H. Hamill	1890		Still serving.
George I. McKelway	1890		Still serving.
J. W. West	1892		Still serving.

NEUROLOGICAL STAFF.

Name.	Service began.	Service ended.	Remarks.
Charles K. Mills	1877		Still serving.
H. C. Wood	1883	1887	
H. C. Wood	1887	1888	
Roberts Bartholow	1887	1888	
Francis X. Dercum	1887		Still serving.
James Hendrie Lloyd	1888	1889	
James Hendrie Lloyd	1890		Still serving.
Wharton Sinkler	1888		Still serving.
C. H. Bradfute	1889	1890	

OPHTHALMOLOGISTS.

Name.	Service began.	Service ended.	Remarks.
E. O. Shakespeare	1877	1889	
G. E. de Schweinitz	1887		Still serving.
Charles H. Thomas	1888	1888	Acting ophthalmologist.
George M. Gould	1889		Still serving.

DERMATOLOGISTS.

Name.	Service began.	Service ended.	Remarks.
F. F. Maury	1870	1870	Acting dermatologist.
Louis Duhring	1870	1877	
Louis Duhring	1877	1889	Acting dermatologist.
Henry W. Stelwagon . .	1887		Still serving.
H. A. Cantrell	1889		Still serving.

LARYNGOLOGISTS.

Name.	Service began.	Service ended.	Remarks.
C. Jay Seltzer	1890		Still serving.
George M. Marshall . . .	1890		Still serving.

PATHOLOGISTS.

Name.	Service began.	Service ended.	Remarks.
James Tyson	1871	1875	
R. M. Bertolet	1872		
Joseph Berens	1876	1879	
E. O. Shakespeare . . .	1882	1889	
Henry F. Formad	1887	1892	
John Guit��ras	1892		Still serving.
W. M. L. Coplin	1892		Still serving.

BACTERIOLOGIST.

Name.	Service began.	Service ended.	Remarks.
E. O. Shakespeare . . .	1889		Still serving.

ASSISTANT PATHOLOGISTS.

Name.	Service began.	Service ended.	Remarks.
L. L. Hatch	1889	1891	
H. W. Cattell	1889		Still serving.
William B. Jameson . . .	1892		Still serving.
Ernest B. Sangree	1892		Still serving.
David Bevan	1892		Still serving.

CURATORS.

Name.	Service began.	Service ended.	Remarks.
D. Hayes Agnew	1860	1867	
William Pepper	1867	1871	
R. M. Bertolet	1871	1872	
R. M. Bertolet	1875	1876	
James Tyson	1872	1875	
Joseph Berens	1876	1879	
E. O. Shakespeare	1880	1882	

MICROSCOPISTS.

Name.	Service began.	Service ended.	Remarks.
James Tyson	1866	1872	
R. M. Bertolet	1872	1875	
Thomas B. Reed	1875	1876	
H. F. Formad	1880	1892	

PHYSICIANS TO THE INSANE DEPARTMENT.

Name.	Service began.	Service ended.	Remarks.
L. Henley	1849	1852	Assistant physician in charge.
J. H. Benton	1852	1852	Assistant physician in charge.
L. Henley	1852	1854	From 1854 to 1859 no one regularly in charge.
Samuel W. Butler	1859	1866	
D. D. Richardson	1866	1880	
D. D. Richardson	1881	1885	
A. A. McDonald	1880	1881	
Philip Leidy	1885	1887	
William H. Wallace	1887	1887	
George M. Wells	1887	1890	
Daniel E. Hughes	1890		Still serving.

CONSULTING PHYSICIAN TO THE INSANE DEPARTMENT.

Name.	Service began.	Service ended.	Remarks.
S. Weir Mitchell	1884	1886	
Horatio C. Wood	1884	1885	
Charles K. Mills	1884	1887	
Charles K. Mills	1890		Still serving.
Andrew Nebinger	1885	1886	
James A. Simpson	1886	1887	
Philip Leidy	1886	1887	
F. X. Dercum	1890		Still serving.
Wharton Sinkler	1890		Still serving.
James Hendrie Lloyd	1890		Still serving.

REGISTRARS.

MEDICAL.

Name.	Service began.	Service ended.	Remarks.
W. A. Edwards	1885	1886	
C. J. Seltzer	1886	1890	
F. A. Packard	1890	1892	
Alfred Stengel	1892		Still serving.

SURGICAL.

Name.	Service began.	Service ended.	Remarks.
Edward Martin	1885	1888	Transferred to Surgical Staff.
C. B. Penrose	1888	1892	
J. C. Da Costa	1892		Still serving.

OBSTETRICAL.

Name.	Service began.	Service ended.	Remarks.
H. A. Pardee	1885	1887	
Edward P. Davis	1887	1888	
R. H. Hamill	1888	1890	
R. C. Norris	1890		Still serving.

NERVOUS.

Name.	Service began.	Service ended.	Remarks.
Guy Hinsdale	1885	1892	
Augustus A. Eshner	1892		Still serving.

LIST OF MEMBERS OF THE MEDICAL BOARD.

WITH ADDRESSES, PLACE AND TIME OF GRADUATION, DATE OF APPOINTMENT TO THE PHILADELPHIA HOSPITAL, AND POSITIONS HELD IN OTHER INSTITUTIONS.

IN the main, this list as arranged represents the order of seniority of the different members of the medical board; but in a few instances it does not, as some of the present members are serving for a second period. Some also have been elected during the same year, or even at the same meeting of the governing board, and practically the latter do not differ in seniority.

JAMES TYSON, M.D., 1506 Spruce street. Graduate of Univ. Penna., 1863. Appointed 1872; served until 1889; re-appointed 1893. Professor of Clinical Medicine in the University of Pennsylvania.

WILLIAM G. PORTER, M.D., 1223 Spruce street. Graduate of Univ. Penna., 1868. Appointed 1875. Surgeon to the Presbyterian Hospital; Consulting Surgeon to the Philadelphia Dispensary.

J. WILLIAM WHITE, M.D., 1810 South Rittenhouse Square. Graduate of Univ. Penna., 1871. Appointed in 1875; served until 1889; re-appointed in 1892. Professor of Clinical Surgery in the University of Pennsylvania; Surgeon to the University and to the German Hospitals.

E. E. MONTGOMERY, M.D., 1715 Walnut street. Graduate of Jefferson Medical College, 1874. Appointed 1877; served until 1886; re-appointed 1886. Professor of Clinical Gynecology, Jefferson Medical College; Gynecologist to the Jefferson and to the St. Joseph's Hospitals.

CHARLES K. MILLS, M.D., 1909 Chestnut street. Graduate of Univ. Penna., 1869. Appointed 1877. Professor of Mental Diseases and of Medical Jurisprudence in the University of Pennsylvania, and Dean of the Faculty of the Auxiliary Department of Medicine in the University; Professor of Diseases of the Mind and Nervous System in the Philadelphia Polyclinic; Clinical Professor of Nervous Diseases in the Woman's Medical College of Pennsylvania; Physician to St. Clement's Hospital for Epileptics; Consultant to St. Joseph's Hospital, to the West Philadelphia Hospital for Women, and to the New Jersey Training-School for Feeble-Minded Children.

E. O. SHAKESPEARE, M.D., 1336 Spruce street. Graduate of Univ. Penna., 1869. Appointed Ophthalmologist, 1877; Curator, 1880; Pathologist, 1882; Bacteriologist, 1889.

ROLAND G. CURTIN, M.D., 22 South Eighteenth street. Graduate of Univ. Penna., 1866. Appointed 1880. Consulting Physician to the Rush Hospital for Consumptives, to St. Timothy's Hospital, and to the Midnight Mission; Visiting Physician to the Presbyterian Hospital; Lecturer on Physical Diagnosis in the University of Pennsylvania; Assistant Physician to the Hospital of the University of Pennsylvania; President of the American Climatological Society.

- W. JOSEPH HEARN, M.D., 1130 Walnut street. Graduate of Jefferson Medical College, 1867. Appointed 1882. Visiting Surgeon to the Jefferson Medical College Hospital; Lecturer on Clinical Surgery in the Jefferson Medical College.
- CLARA MARSHALL, M.D., 131 South Eighteenth street. Graduate of Wom. Med. Coll. Penna., 1875. Appointed 1882. Dean and Professor of Therapeutics in the Woman's Medical College of Pennsylvania; Attending Physician to the Girl's Department of the House of Refuge.
- LEWIS W. STEINBACH, M.D., 716 Franklin street. Graduate of Jefferson Medical College, 1880. Appointed 1885. Surgeon to the Jewish Hospital; Professor of Surgery in the Philadelphia Polyclinic.
- JOHN H. MUSSER, M.D., Northeast cor. Fortieth and Locust streets. Graduate of Univ. Penna., 1877. Appointed 1885. Assistant Professor of Clinical Medicine in University of Pennsylvania; Physician to the Presbyterian Hospital; Consulting Physician to the Woman's Hospital, and to the West Philadelphia Hospital for Women.
- HENRY W. STELWAGON, M.D., 223 South Seventeenth street. Graduate of Univ. Penna., 1875. Appointed 1887. Clinical Professor of Dermatology in the Jefferson Medical College, and in the Woman's Medical College; Physician to the Skin Department of the Northern Dispensary and of the Howard Hospital.
- FRANCIS X. DERCUM, M.D., 810 North Broad street. Graduate of Univ. Penna., 1877. Appointed 1887. Clinical Professor of Diseases of the Nervous System in the Jefferson Medical College; Visiting Physician to the St. Clement's Hospital for Epileptics; Consulting Neurologist to St. Agnes' Hospital; Assistant Physician to the Orthopedic Hospital and Infirmary for Nervous Diseases.
- G. E. DE SCHWEINITZ, M.D., 1401 Locust street. Graduate of Univ. Penna., 1881. Appointed 1887. Professor of Ophthalmology in Philadelphia Polyclinic and School for Graduates; Clinical Professor of Ophthalmology in Jefferson Medical College; Ophthalmic Surgeon to the Children's Hospital and to the Orthopedic Hospital and Infirmary for Nervous Diseases; Consulting Ophthalmologist to the Methodist Hospital and Hospital for Epileptics and Dispensary of St. Clement's Church; Ophthalmologist to the Church Home, Angora, and to the Home of the Merciful Saviour for Crippled Children.
- JOHN BLAIR DEAYER, M.D., 120 South Eighteenth street. Graduate of Univ. Penna., 1878. Appointed 1887. Professor of Surgery in the Philadelphia Polyclinic; Assistant Professor of Applied Anatomy in the University of Pennsylvania; Attending Surgeon to the German Hospital; Consulting Surgeon to St. Agnes' and St. Timothy's Hospitals.
- BARTON COOKE HIRST, M.D., 248 South Seventeenth street. Graduate of Univ. Penna., 1883. Appointed 1887. Professor of Obstetrics in the University of Pennsylvania; Obstetrician to the University and Maternity Hospitals; Gynecologist to the Orthopedic Hospital.
- EDWARD MARTIN, M.D., 415 South Fifteenth street. Graduate of Univ. Penna., 1883. Appointed 1888; served until 1889; reappointed 1892. Served as Surgical Registrar from 1885 to 1888. Clinical Professor of Genito-Urinary Diseases in the University of Pennsylvania.

- JAMES HENDRIE LLOYD, M.D.**, 3910 Walnut street. Graduate of Univ. Penna., 1878. Appointed 1888; served until December, 1889; re-appointed 1890. Physician to the Home for Crippled Children; Physician to the Methodist Hospital, and to the St. Clement's Hospital for Epileptics.
- EDWARD P. DAVIS, M.D.**, 250 South Twenty-first street. Graduate of Rush Medical College, Chicago, 1882. Appointed 1888. Professor of Obstetrics and Diseases of Children in the Philadelphia Polyclinic; Clinical Lecturer on Obstetrics in the Jefferson Medical College; Attending Physician to the Foulke and Long Orphanage, and to the Cinton Street Boarding Home for Women.
- FREDERICK P. HENRY, M.D.**, 1635 Locust street. Graduate of College of Physicians and Surgeons, New York, 1868. Appointed 1888. Professor of the Principles and Practice of Medicine in the Woman's Medical College of Pennsylvania; Physician to the Home for Consumptives at Chestnut Hill.
- WHARTON SINKLER, M.D.**, 1606 Walnut street. Graduate of Univ. Penna., 1868. Appointed 1888. Professor of Diseases of the Nervous System in the Philadelphia Polyclinic; Physician to Orthopedic Hospital and Infirmary for Nervous Diseases; Manager of the Episcopal Hospital; Physician to St. Clement's Hospital for Epileptics.
- J. M. ANDERS, M.D., PH.D.**, 1637 North Broad street. Graduate of Univ. Penna., 1877. Appointed 1889. Professor of Clinical Medicine and Hygiene in the Medico-Chirurgical College; Physician to the Episcopal and to the Medico-Chirurgical Hospitals.
- W. E. HUGHES, M.D.**, 3796 Baring street. Graduate of Univ. Penna., 1880. Appointed 1889. Instructor in Physical Diagnosis in the University of Pennsylvania.
- SOLOMON SOLIS-COHEN, M.D.**, 219 South Seventeenth street. Graduate of Jefferson Medical College, 1883. Appointed 1889. Professor of Clinical Medicine and Applied Therapeutics in the Philadelphia Polyclinic; Lecturer on Clinical Medicine and Therapeutics in the Jefferson Medical College; Lecturer on Therapeutics in Dartmouth Medical College; Consulting Physician to the Jewish Hospital.
- EUGENE L. VANSANT, M.D.**, 1929 Chestnut street. Graduate of Jefferson Medical College, 1884. Appointed 1889. Lecturer on Clinical Medicine, Jefferson Medical College; Surgeon to the Throat, Nose, and Ear Department of the Howard Hospital.
- ORVILLE HORWITZ, M.D.**, 1115 Walnut street. Graduate of Jefferson Medical College, 1883. Appointed 1889. Clinical Professor of Genito-Urinary Diseases, Jefferson Medical College.
- ERNEST LAPLACE, M.D.**, 1617 Arch street. Graduate of Univ. La., 1884. Appointed 1889. Professor of Clinical Surgery in the Medico-Chirurgical College.
- WILLIAM EASTERLY ASHTON, M.D.**, 338 South Fifteenth street. Graduate of Univ. Penna., 1881; Graduate of Jefferson Medical College, 1884. Appointed 1889. Professor of Gynecology in the Medico-Chirurgical College; Gynecologist to the Medico-Chirurgical Hospital.

- GEORGE M. GOULD, M.D., 119 South Seventeenth street. Graduate of Jefferson Medical College, 1888. Appointed 1889.
- J. ABBOTT CANTRELL, M.D., 1010 South Third street. Graduate of Jefferson Medical College, 1885. Appointed 1889. Instructor in Dermatology in Jefferson Medical College; Dermatologist to the St. Agnes' Hospital.
- HENRY W. CATTELL, M.D., 3455 Woodland avenue. Graduate of Univ. Penna., 1887. Appointed 1889. Demonstrator of Morbid Anatomy in the University of Pennsylvania; Pathologist to the Presbyterian Hospital and to the Institution for Feeble-Minded Children at Elwyn; Presector to the American Anthropometric Society.
- W. B. JAMESON, M.D., 767 North Fortieth street. Graduate of Univ. Penna., 1886. Appointed 1890.
- JAMES M. BARTON, M.D., 1337 Spruce street. Graduate of Jefferson Medical College, 1888. Appointed 1890. Surgeon to the Jefferson Medical College Hospital.
- C. JAY SELTZER, M.D., 1501 Walnut street. Graduate of Univ. Penna., 1881. Appointed 1890. Ophthalmic Surgeon to Howard Hospital and to Southern Home for Destitute Children; Assistant Ophthalmologist and Surgeon to the Wills Eye Hospital.
- GEORGE MORLEY MARSHALL, M.D., 1700 Girard Avenue. Graduate of Univ. Penna., 1886. Appointed 1890. Attending Physician to St. Joseph's Hospital and Chief of its Throat Dispensary.
- ROBERT H. HAMILL, M.D., 330 South Sixteenth street. Graduate of Univ. Penna., 1878. Appointed 1890. Obstetrician to Maternity Hospital; Gynecologist to the Howard Hospital.
- GEORGE I. MCKELWAY, M.D., 116 North Seventeenth street. Graduate of Univ. Penna., 1889. Appointed 1890.
- FREDERICK A. PACKARD, M.D., 131 South Fifteenth street. Graduate of Univ. Penna., 1885. Appointed Registrar, 1890; served until 1892; appointed on the Medical Staff, 1892. Instructor in Physical Diagnosis, University of Pennsylvania; Visiting Physician to the Medical Dispensary of the Episcopal Hospital.
- RICHARD C. NORRIS, M.D., 1028 Spruce street. Graduate of Univ. Penna., 1887. Appointed 1890. Demonstrator of Obstetrics, University of Pennsylvania; Assistant Obstetrician to the University Maternity; Visiting Physician to the Methodist Hospital; Consulting Obstetrician and Attending Gynecologist to the Southeastern Dispensary and Hospital for Women and Children.
- J. CHALMERS DA COSTA, M.D., 2050 Locust street. Graduate of Jefferson Medical College, 1885. Appointed 1890.
- JUDSON DALAND, M.D., 319 South Eighteenth street. Graduate of Univ. Penna., 1882. Appointed 1892. Instructor in Clinical Medicine and Lecturer on Physical Diagnosis and Symptomatology in the University of Pennsylvania; Assistant Physician to the University Hospital; Physician to the Philadelphia Hospital, and to the Rush Hospital for Consumptives.

- SAMUEL WOLFE, A.M., M.D.**, 1624 Diamond street. Graduate of Univ. Penna. Appointed 1892. Clinical Professor of Nervous Diseases, Medico-Chirurgical College; formerly Professor of Physiology, Medico-Chirurgical College; Neurologist to Medico-Chirurgical and Samaritan Hospitals.
- JULIUS L. SALINGER, M.D.**, 1510 North Eighth street. Graduate of Jefferson Medical College, 1886. Appointed 1892. Lecturer on Renal Diseases; Chief of the Medical Clinic, Jefferson Medical College Hospital.
- J. W. WEST, M.D.**, 1125 Wallace street. Graduate of Jefferson Medical College, 1886. Appointed 1892.
- JOHN GUITÉRAS, M.D.**, 3914 Sansom street. Graduate of Univ. Penna., 1873. Appointed 1892. Served on the Medical Staff from 1875 to 1880. Professor of Pathology in the University of Pennsylvania; Pathologist to the Hospital of the University of Pennsylvania; President of the Section of Pathology in the Pan-American Congress.
- W. M. L. COPLIN, M.D.**, 310 Catharine street. Graduate of Jefferson Medical College, 1886. Appointed 1892. Adjunct Professor of Hygiene, Demonstrator of Pathology, and Curator of the Museum of the Jefferson Medical College; Adjunct Professor of Pathology in the Philadelphia Polyclinic; Surgeon to St. Mary's Hospital.
- AUGUSTUS A. ESHNER, M.D.**, 224 South Sixteenth street. Graduate of Jefferson Medical College, 1888. Appointed 1891. Instructor in Clinical Medicine in the Philadelphia Polyclinic.
- DAVID BEVAN, M.D.**, 312 Catharine street. Graduate of Jefferson Medical College, 1891. Appointed 1892. Instructor in Hygiene in the Jefferson Medical College; Bacteriologist to St. Agnes' Hospital.
- E. B. SANGREE, M.D.**, 1744 South Fifteenth street. Graduate of Medico-Chirurgical College of Philadelphia. Appointed 1892.
- ALFRED STENGEL, M.D.**, 332 South Seventeenth street. Graduate of Univ. Penna., 1889. Appointed 1892. Pathologist to German Hospital; Instructor in Clinical Medicine, University of Pennsylvania.



OFFICIAL CHANGES.

WHEN the first volume of the Philadelphia Hospital Reports was published in 1890, the Department of Charities and Correction was constituted of the following Directors:—Robert Loughlin, President; R. A. Cleeman, M.D., John Roberts, R. C. McMurtrie, and James Stewart.

No changes occurred in the Board during the remainder of the term of Mayor Fitler, which expired in April, 1891, nor during the first year of Mayor Stuart's administration.

Upon the seventh of April, 1892, the term of five years, for which the entire Board had been appointed by Mayor Fitler, in conformity with the consolidated system of municipal government which came into use in 1887, having expired, Mayor Stuart appointed the following gentlemen to constitute a new Board:—Jas. A. Freeman, President; Wm. D. Gardner, Treasurer; John Huggard, Wm. H. Lambert, Alfred Moore.

Mr. Freeman took a very active interest in the work of the Department, but was compelled by ill health to resign his position, and retired on September 28, 1892.

The following month the Mayor appointed Major Wm. H. Lambert to the presidency in Mr. Freeman's stead, and filled the vacancy thus caused among the directors by the selection of Dr. James W. Walk, who, as General Secretary of the Society for Organizing Charity, had an intimate acquaintance with all matters connected with the care of the poor.

After the membership of the Board was completed by Dr. Walk's appointment, the members were assigned to duty as follows:—Bureau of Charities, Mr Moore, Chairman, Mr. Gardner; Bureau of Correction, Mr. Huggard, Chairman, Dr. Walk, President Lambert being *ex officio* a member of both bureaus.

The membership of the bureaus, as then constituted, has continued to the present time (October, 1893).

Since the organization of the Department of Charities and Correction in 1887, the following gentlemen, in addition to the present members, have been at one time or another connected with the Board:—James W. White, M.D., Richard A. Cleeman, M.D., Robert Loughlin, Richard C. McMurtrie, James Stewart, Galloway C. Morris, and John Roberts.

Dr. Jas. W. White, the first President of the Department, died suddenly on the twenty-seventh of May, 1891. During a long and successful life, he had attained eminence in many fields of labor, as a physician, editor, and head of a large business firm. In the midst of engrossing occupations he found time for careful attention to the affairs of the Department, and has left a lasting impress upon its system of administration.

The chief officials of the Department remain the same as when the first volume of these reports was published, in 1890, except that George Roney, Superintendent of the Almshouse, resigned that position upon April 6, 1891, to become Director of Public Safety. The vacant superintendency was filled, after a competitive examination of applicants, by the appointment of Captain Charles Lawrence, formerly President of Common Council.

J. W. W.

CATALOGUE
OF THE
PATHOLOGICAL MUSEUM
OF THE
PHILADELPHIA HOSPITAL.

PREPARED BY
JOHN GUITÉRAS, M.D.

THIS CATALOGUE INCLUDES THE SPECIMENS FOUND IN THE MUSEUM AT THE
TIME WHEN THE PRESENT PATHOLOGIST ASSUMED CHARGE OF
THE DEPARTMENT SIX MONTHS AGO, JULY, 1892.

DESCRIPTIVE CATALOGUE.

NOTE.—The characters that accompany each description have the following signification: the capital letter represents the case in the museum, and the number following indicates the shelf. The number immediately preceding the description is that of the specimen. Each system—the respiratory, the nervous, etc.—has its own numeration of specimens. When volume and page numbers follow the description of specimens, the references are to the Post-mortem Record Books.

TUBERCULOSIS.

- U—3. 14. Lupus of skin.
 - T—4. 2. Tubercular udder of a cow.
 - T—4. 3. Omentum of a cow, showing pearl disease.
 - U—3. 18. Tubercular mass from the peritoneum of a cow.
 - U—1. 28. Omentum of cow, pearl disease.
 - U—1. 29. Omentum of cow, pearl disease.
-

PARASITES.

- T—5. 10. *Tænia medio-canellata*.
 - U—1. 25. *Tænia medio-canellata*.
 - U—1. 26. *Tænia medio-canellata*.
-

TUMORS OF DIFFERENT LOCALITIES.

- S—4. 2. Fibroma of the back.
- S—5. 7. Small fibroma.
- S—5. 9. Fibroma, from vicinity of the patella.
- S—5. 10. Fibroma removed from left labia.
- S—4. 6. Portion of keloid (about one-fourth of the entire mass removed by Dr. F. F. Maury).
- S—5. 11. Tumor, with calcareous change in its structure. Seat unknown.
- S—4. 3. Soft fibroma of the peritoneum.
- T—1. 18. Fibroma found in left broad ligament of the size and shape of a small kidney.

- S—4. 1. Lipoma, from subcutaneous connective tissue above the hip.
- S—4. 5. Lipoma of the left breast from a woman aged fifty-seven.
- S—5. 12. Sarcoma of the left inferior maxilla.
- S—5. 14. Sarcoma of the orbit.
- T—1. 16. Sarcoma, retroperitoneal.
- U—2. 20. Sarcoma of thigh.
- U—1. 21. Sarcoma of leg involving upper portion of shaft of tibia.
- T—1. 17. Parotid tumor.
- S—4. 4. Squamous epithelioma from the perineum of a man, not involving the rectum or the genitals.
- S—5. 8. Secondary cancer of brain.
- T—1. 19. Cancerous lymph glands from a case of cancer of the stomach.
- S—5. 13. Hygroma of the neck.
- S—5. 15. Sebaceous cyst, with calcified capsule.

MONSTROSITIES. FŒTUSES.

- U—2. 20. Normal fœtus.
- U—2. 24. Full term fœtus in utero.
- U—2. 22. Premature fœtus. Sternum sunken, from failure of union of some of the costal cartilages.
- U—1. 30. Twins united by a tube containing intestines at the umbilicus. Twins of Mary Reaves.
- T—4. 5. Child's head, normal, decapitation in utero.

THE BLOOD-MAKING ORGANS.

THE SPLEEN.

MALFORMATIONS.

- A—4. 17. Lobulated spleen.

DISTURBANCES OF THE CIRCULATION AND DEGENERATIONS.

- B—4. 36. Amyloid, sago spleen.
- D—5. 105. Amyloid spleen.
- C—5. 73. Spleen, showing old hemorrhagic infarcts. Volume IV., page 100.
- A—5. 21. Spleen with thickened capsule, showing embolic patches.
- D—5. 111. Small atrophic spleen, from a case of cancer of the stomach, with metastasis. The connective tissue and the blood-vessels are prominent.

INFLAMMATION AND HYPERPLASIA OF THE SPLEEN.

- A—4. 15. Spleen with thickened capsule.
- A—5. 20. Spleen with thick, corrugated capsule.
- B—5. 41. Spleen with pseudo-cartilaginous patches in the capsule.
- C—2. 56. Spleen with calcareous plate in the thickened capsule.
- B—4. 87. Embolic abscess of the spleen.
- B—2. 28. Enlargement of the spleen. Weight, three pounds, thirteen ounces.
- C—3. 62. Hyperplasia of the spleen.
- D—3. 95. Enlarged spleen with lymphoid tumors, from a case of pseudo-leukæmia.
- E—2. 121. Leukæmic spleen. Weight, five pounds, ten ounces.
- E—3. 125. Large hyperplastic spleen.
- E—5. 138. Enlargement of the spleen.

INFECTIOUS DISEASES OF THE SPLEEN.

- B—5. 39. Section of spleen, from a case of relapsing fever.
- B—5. 40. Section of spleen, from a case of relapsing fever.
- C—2. 54. Tuberculosis of the spleen.
- E—3. 126. Tuberculosis of the spleen.
- E—5. 135. Syphilitic gummata of the spleen.

TUMORS OF THE SPLEEN.

- C—5. 72. Small tumor of the spleen. Undetermined.

DISEASES OF THE LYMPHATIC SYSTEM.

- B—4. 35. Hyperplastic mesenteric glands.
- C—8. 89. Hyperplastic mesenteric glands.
- C—3. 57. Mesenteric glands and spleen, from a case of Hodgkin's disease in a colored boy. 1871.

THE VASCULAR SYSTEM.

MALFORMATIONS.

- F—1. 1. Left vertebral artery given off from the aorta.
- F—2. 7. Four pulmonary leaflets of about equal size. Vol. IV., p. 103.
- F—3. 15. Chorda tendinea extending from the base of the right aortic valve to near the apex of the left ventricle, passing over anterior mitral valve.

- G—5. 52. Vertebral artery originating directly from the aorta.
- H—5. 82. Left vertebral artery given off from the aorta.
- I—3. 96. Fenestrated aortic valves.
- G—4. 44. Patulous foramen ovale, half an inch in diameter. Vol. II., p. 215.

DISEASES OF THE HEART.

ATROPHY. SOFTENING. ANEURISM.

- F—2. 9. Sclerotic endocarditis. Rigid aortic valves. Pouch in the sclerotic anterior wall of the left ventricle.
- F—2. 10. Enlarged and dilated heart. Aortic valves thick and incompetent. Aneurism of the right sinus of Valsalva. Right coronary artery occluded. Right ventricle shows distinct areas of fatty degeneration. Vol. II., p. 182.
- G—3. 40. Enlarged and fatty heart, showing extreme atheroma of the aorta.
- C—5. 49. Fatty heart, atheroma of the coronary arteries.
- H—3. 64. Heart. There is a large mass about the size of an orange springing from the right and posterior wall of the right auricle and ventricle, encroaching also behind upon the posterior wall of the left ventricle. This mass is a sac with thick fibrous walls and an irregular cavity. Right ventricle slightly hypertrophied, left ventricle more so. At the junction of anterior and posterior ventricular walls towards the right, there is an opening to the right of the anterior leaflet of the mitral valve. This opening has smooth, excavated edges, forming a small, aneurismal pouch about the size of a pea. Behind the posterior leaflet of the mitral valve, somewhat towards the right, there is a similar orifice concealed by the valve. It is about a quarter of an inch in diameter, and communicates with the sac above described. The endocardium is thickened throughout.
- I—3. 96. Fenestrated aortic valves. Brown atrophy of the heart.
- G—5. 50. Aneurism of the ventricular septum in its upper portion, projecting from the left to the right ventricle. The aneurism is about the size of a plum.

HYPERTROPHY AND DILATATION.

- G—2. 34. Huge hypertrophy of the heart. Sclerotic endocarditis affecting the mitral and aortic valves.
- G—3. 38. Hypertrophy and dilatation of the left ventricle.
- G—4. 45. Hypertrophied heart weighing twenty-seven ounces. Sclerotic endocarditis. Aortic obstruction and regurgitation.
- G—5. 53. Dilated fatty heart.

- H—4. 74. Heart, showing hypertrophy with dilatation of the left ventricle and adherent clot in the right ventricle.
- G—5. 47. Button-hole mitral valve. Enormous dilatation of the left auricle, four inches in diameter.

ENDOCARDITIS. VALVULAR LESIONS.

- F—2. 6. Aortic valves rigid from calcareous infiltration. Atheroma of the coronary arteries. Right heart dilated, with very thin walls. Left heart hypertrophied.
- F—2. 9. Sclerotic endocarditis. Rigid aortic valves. Pouch in sclerotic anterior wall of the left ventricle.
- F—2. 8. Warty endocarditis affecting the aortic valves.
- F—3. 11. Warty endocarditis, with ulceration. Union of the anterior and right leaflets of the aortic valve. Perforation of the right aortic valve.
- F—3. 12. Stenosis of the mitral valve.
- F—8. 13. Warty aortic valvulitis.
- F—8. 14. Stenosis of the mitral valve, the auricular surface of which is studded with calcareous masses.
- F—4. 16. Warty and ulcerated endocarditis of aortic valve. Hypertrophy with dilatation.
- F—4. 19. Sclerotic aortic valvulitis. Button-hole mitral. Atrophic heart.
- G—3. 35. Sclerosis of aortic valve, with junction of anterior and right leaflets.
- G—3. 36. Button-hole mitral orifice.
- G—3. 39. Hypertrophy of the left ventricle and extreme calcareous infiltration of the aortic valve.
- G—4. 41. Hypertrophy of heart. Ulcerative endocarditis of aortic valve.
- G—4. 42. Sclerotic endocarditis giving rise to marked aortic and mitral disease.
- G—4. 43. Warty endocarditis of mitral and aortic valves.
- G—4. 46. Sclerotic endocarditis. Mitral stenosis.
- G—5. 47. Button-hole mitral, with enormous dilatation of the left auricle.
- H—3. 67. Ulcerative endocarditis affecting mitral and aortic valves.
- H—3. 68. Sclerotic endocarditis causing mitral obstruction and regurgitation.
- H—3. 69. Sclerotic and ulcerative endocarditis affecting the aortic and mitral valves.
- H—3. 70. Sclerotic endocarditis with calcareous plates in the aortic and mitral valves. Hypertrophy of the left ventricle.
- H—3. 71. Sclerosis endocarditis. Dilatation of the left ventricle.
- H—4. 72. Extreme mitral constriction.
- H—4. 76. Ulcerative endocarditis. Perforation of aortic valve.
- H—5. 73. Dilatation of left auricle. Perforation of mitral leaflet.
- H—5. 79. Sclerotic endocarditis affecting aortic valve. Union of two leaflets.
- H—5. 88. Ulcerative endocarditis of the aortic valve.

- I—2. 89. Dilatation of heart, with aortic insufficiency. Atheroma and dilatation of the arch of the aorta.
- I—2. 91. Stenosis and insufficiency of aortic valve, with hypertrophy and dilatation of the left ventricle.
- I—3. 94. Atheroma of the aortic valve, with hypertrophy of the left ventricle.
- I—3. 95. Calcareous aortic valve almost completely occluding the orifice. Also warty endocarditis.
- I—3. 98. Warty endocarditis of the aortic valve.
- I—4. 99. Warty and sclerotic endocarditis of mitral and aortic valves. Dilatation of left ventricle
- I—4. 100. Ulcerative endocarditis of aortic and mitral valves.
- I—4. 101. Mitral constriction and insufficiency. Hypertrophy of the left ventricle.
- I—4. 108. Atheroma of the aorta. Calcification of the aortic valve with union of two leaflets.
- I—5. 104. Right ventricle, showing thickening of the tricuspid valve.
- I—5. 105. Hypertrophy of left ventricle. Sclerotic endocarditis of aortic valve.
- I—5. 108. Part of left ventricle, showing sclerotic endocarditis of the mitral valve and hypertrophy of the papillary muscles.
- I—5. 109. Warty endocarditis of the mitral valve.
- H—4. 78. Tricuspid orifice, obstructed by a large fibrinous clot.

DISEASES OF THE PERICARDIUM.

- F—3. 15. Pericardial adhesions. Tendinous cord running from base of right aortic valve to near the apex, passing over the anterior mitral valve.
- F—4. 17. Pericarditis with deposit of organized lymph on cardiac surface.
- G—1. 25. Chronic pericarditis. Enormous thickening of the pericardium, and thrombosis.
- H—3. 65. Sarcoma of the pericardium.
- F—4. 20. Heart showing a few miliary nodules on the pericardium.
- G—2. 81. Dilated heart. Adherent pericardium. Sclerotic endocarditis.
- I—1. 87. Heart and lungs, showing chronic pericarditis with atelectasis.

DISEASES OF THE ARTERIES.

SCLEROSIS AND ATHEROMA OF THE ARTERIES.

- G—1. 28. Atheroma of aorta and iliac arteries. Large plates of calcareous matter.
- G—2. 32. Highly atheromatous and dilated arch of the aorta.
- G—3. 40. Extreme atheroma of the aorta. Enlarged and fatty heart.

- H—5. 80. Atheroma of the aorta.
- H—5. 84. Portion of an aorta everted and stuffed, showing atheromatous deposits in the intima.
- H—5. 85. Atheromatous circle of Willis.
- G—5. 49. Fatty heart, extreme atheroma of aorta. Coronary arteries also atheromatous.

ANEURISMS.

ANEURISMS OF THE THORACIC AORTA.

- F—1. 3. Aneurism of the thoracic aorta, eroding extensively the bodies of six dorsal vertebræ. The intervertebral cartilages are intact, and project as prominent plates.
- F—1. 5. Heart and aorta. Aneurism of thoracic and abdominal portions. Fusiform dilatation, 6 x 8 inches. Small heart. Vol. IV., p. 16.
- G—1. 27. Large saccular aneurism of the thoracic aorta of the size of a foetal head. The bodies of seven dorsal vertebræ are extensively eroded.
- G—2. 30. Two aneurisms of the arch of the aorta,—one at the junction of the ascending and transverse, and the other and larger one (size of a large fist) at junction of the transverse and descending portion. Great distention of right auricle.
- G—2. 33. Large aneurismal dilatation of the ascending and transverse portions of the arch. At the junction of the ascending and transverse portions there is a saccular aneurism about the size of a lemon. This pushes out to the right of the sternum through the anterior extremity of the second rib and its cartilage. The sac protrudes about half an inch from the surface. Hypertrophy and dilatation of both ventricles.
- G—5. 48. Hypertrophy of left ventricle. Aneurism of aorta. No valvular lesion.
- H—1. 54. Aneurism of the ascending part of the arch of the aorta. The sac pointed on the right side of the sternum, opposite the third and fourth costal cartilages, the ribs being eroded and removed.
- H—1. 55. Large aneurism of the transverse portion of the arch, of the size of an infant's head. The sac is attached to the upper part of the sternum by strong adhesions.
- H—1. 56. Cylindrical aneurism of descending portion of the arch, showing erosion of the vertebral column.
- H—1. 57. Aneurism of the transverse part of the arch, with erosion and perforation of the sternum. The anterior wall of the sac is composed of skin. The clavicle and the upper part of the sternum are found in the aneurismal sac. There is also some dilatation of the descending aorta.
- H—2. 58. Aneurism of the ascending portion of the arch. Rupture into the right pleural sac. A laminated clot, of the size of a large orange, fills the sac.

- H—2. 59. Aneurism of the descending portion of the arch, about the size of a large fist, nearly filled with dense clots.
- H—2. 60. Aneurism of ascending portion of the arch, about the size of an orange, almost filled with laminated clot.
- H—2. 61. Aneurism of ascending portion of the arch.
- H—2. 62. Aneurism of thoracic aorta, projecting posteriorly and eroding the bodies of seven vertebræ. The aneurism is composed of two sacs. The upper one, 4 x 3 inches in diameter; the lower one, 1 x 3 inches in diameter.
- H—2. 63. Aneurism of the arch of the aorta below and in front of the origin of the innominate artery.
- H—3. 66. Aneurism of the ascending aorta dissecting into the walls of the right ventricle, and finally rupturing into the pulmonary artery. See *Philadelphia Medical Times*, October, 1873.
- H—4. 75. Aneurism of the arch and thoracic aorta.
- H—4. 77. Aneurism of the ascending aorta.
- I—3. 97. Aneurism of the arch of the aorta, with rupture into the left bronchus; presented by Dr. Tuter.
- I—4. 102. Aneurism of the arch of the aorta.
- I—5. 107. Aneurism of aorta, breaking into the trachea.
- H—2. 68. Aneurism of the arch of the aorta, in front of the origin of the innominate artery. The sac is about the size of a fist, and is opened in front to show the laminated clot within. The manubrium is attached, and shows erosion at the junction with the gladiolus.
- H—5. 81. Communicating ulcer between œsophagus and aorta. Probably from peri-œsophageal abscess.

ANEURISMS OF THE ABDOMINAL AORTA.

- F—1. 4. Aorta. Atheromatous plates and ulcers. Aneurism of the abdominal aorta, extending from an inch below the renal arteries to the bifurcation. The sac measures four and three-quarters inches in length, and eight inches in circumference. It is almost filled with dense laminated clots.
- F—5. 21. Aneurism of the abdominal aorta, immediately below the diaphragm. The bodies of the vertebræ show commencing erosion. (Dry preparation.)
- F—5. 22. Aneurism of abdominal aorta, immediately above the bifurcation. The bodies of the third and fourth lumbar vertebræ are extensively eroded. (Dry preparation.)
- F—5. 23. Aneurism of abdominal aorta, immediately below the diaphragm. Three of the vertebræ are extensively eroded, and the spinal canal is open. (Dry preparation.)
- F—5. 24. Aneurism of abdominal aorta, showing extensive caries of five dorsal vertebræ. (Dry preparation.)

- G—1. 26. Aneurismal dilatation of the whole of the descending aorta, 4 inches in diameter, and containing hard clots. Also, dilatation of arch and saccular aneurisms springing from the transverse arch, about the size of a lemon. Vol. III., p. 119.
- G—3. 37. Aneurism of aorta, with eroded vertebræ attached.
- I—2. 90. Dissecting aneurism.
- I—2. 92. Aneurism of the descending aorta.
- I—2. 93. Pear-shaped aneurism of the abdominal aorta, just above the renals, connected with the aorta by a narrow neck. A smaller aneurism, about the size of a lemon, springs about one inch above the other, and lies directly upon the body of the vertebra.
- G—1. 29. Aneurism of the abdominal aorta, just above the bifurcation.

ANEURISMS OF OTHER VESSELS.

- G—5. 51. Aneurism of the innominate artery, from its origin to an inch beyond the origin of the carotid. The subclavian is also slightly involved. Arch of the aorta dilated. Aneurism $3\frac{1}{2}$ x 8 inches. Dense clots.
- I—1. 86. Huge aneurism of the femoral artery, measuring 11 x 7 inches in diameter. Vol. V., p. 7.
- I—1. 88. Aneurism of the external iliac artery, of the size of a man's head, eroding the acetabulum and the head of the femur. The cæcum and the appendix are adherent to the mass, which extended from the last dorsal vertebra to Hunter's canal.
- I—5. 106. Fusiform aneurism of the femoral artery, with great thickening of the walls. Same case as I—1. 86.

DISEASES OF THE VEINS.

- F—1. 2. Obstruction of the saphenous vein. Phlebitis.
- F—4. 18. Thrombosis of the hepatic veins and secondary thrombosis of the pulmonary artery.

THE RESPIRATORY SYSTEM.

THE LARYNX.

INFLAMMATIONS. TUBERCULOSIS. SYPHILIS.

- V—3. 20. Larynx and trachea. Chronic œdema from ulceration.
- V—3. 21. Pharynx, trachea, and tongue. Purpura hemorrhagica. Death from suffocation by œdema of the glottis. Woman aged thirty-eight. Case of general purpura hemorrhagica. Tissues at the base of the lung, and the pharynx and larynx are infiltrated with blood. Vol. IV., p. 3.

- V—4. 24. Ulcerative destruction of the left anterior pillar of the palate and of the epiglottic fold of the larynx of a child.
- V—4. 26. Larynx with circular perforation at the angle of the thyroid cartilage, in which a canula has been worn. The skin has cicatrized over the opening.
- V—4. 28. Follicular ulceration of the larynx.
- V—5. 32. Larynx from a case of diphtheria.
- W—4. 57. Tubercular laryngitis with ulceration. Erosion through the anterior portion of the thyroid cartilage. Vol. III., p. 425.
- W—4. 60. Tubercular laryngitis from a case of pulmonary phthisis. Vol. IV., p. 2.
- V—5. 33. Larynx, showing extensive syphilitic ulceration.
- V—4. 22. Tongue and larynx apparently normal.

TUMORS OF THE LARYNX.

- V—3. 19. Tongue and larynx upon which laryngotomy has been performed. Thyroid gland much enlarged. Polypoid growth starting from the aryepiglottic folds.
- V—4. 27. Papilloma of the vocal chords.
- V—4. 30. Undetermined tumor of the larynx.
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DISEASES OF THE TRACHEA AND BRONCHIAL TUBES.

- V—4. 23. Described as ulceration of the mucous membrane of the trachea.
- V—4. 25. Larynx and trachea, showing enlarged bronchial gland at the beginning of the right bronchus.
- V—5. 34. Enlarged bronchial lymph-glands.
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DISEASES OF THE LUNGS.

ATELEKTASIS AND EMPHYSEMA.

- V—2. 13. Atelectasis of the lungs.

PNEUMONOKONIOSIS.

- V—1. 3. Anthracosis of the lung. Sarcoma of the pleura.
- W—2. 46. Anthracosis of the lung.
- W—4. 58. Compressed lung, showing marked anthracosis.

INFLAMMATIONS OF THE LUNG.

- V—1. 5. Lung, showing aspiration pneumonia in small patches.
V—5. 36. Heart and lungs, showing infantile pneumonia. White clots in both sides of the heart.
V—1. 4. Section of lung, showing croupous pneumonia.
V—1. 2. Abscess of the lung opening into a bronchus.
V—5. 35. Abscess in the right lung of a child.
W—1. 38. Lung, presenting an abscess of the size of a child's head.
W—3. 54. Fibroid phthisis, showing dilated bronchi.
V—2. 9. Gangrene of lung. Vol. II., p. 41.

TUBERCULOSIS OF THE LUNG.

- V—1. 7. Thoracic and abdominal viscera of a child. Right lung the seat of advanced tuberculosis. Tuberculosis of mesenteric glands. Vol. IV., p. 199.
V—2. 8. Large cavity in the upper lobe of left lung with perforation of one of the large pulmonary arteries. Large blood-clot in the cavity. Vol. II., p. 422.
V—2. 11. Lung, showing tubercular cavities; one the size of a peach at the apex, and a smaller one below.
W—3. 52. Extensive tuberculosis of the lung and mediastinal and bronchial lymph-glands. From a child aged seven years. Vol. I., p. 339.
W—2. 47. Lung, showing tubercular cavities. Death from sudden hemorrhage.
W—3. 53. Large cavity of the lung adherent to the chest-wall and preserved with the attachment to the ribs.
V—2. 14. Lung, showing advanced stage of miliary tuberculosis of the lung.
V—3. 18. Lungs of an infant four months old, showing miliary tubercles. Emphysema from rupture of air-vesicles on the anterior surface of the right upper lobe.
V—5. 37. Portion of lung, showing miliary tuberculosis.
W—2. 44. Lung with cavity.
W—2. 49. Large cheesy deposit in the lung.
W—3. 51. Tubercular caseous pneumonia.

DISEASES OF THE PLEURA.

- V—3. 15. Portion of lung, showing partially-calcified pleuritic adhesions.
V—3. 16. Heart and lungs of a male child, twelve months old, showing plastic pleurisy.
V—5. 31. Calcified plates in the pleura. Same patient as 59.
W—1. 39. Empyema. Enormously-thickened pleura. Fibroid changes in the lungs.

- W—1. 48. Empyema. Lung compressed and covered by a thickened pleura undergoing calcification.
- W—2. 45. Thickened pleura with portion of lung attached.
- W—2. 48. Calcification of the pleura.
- W—2. 50. Calcification of the pleura.
- W—3. 55. Pleural sac, showing chronic pleurisy with calcareous deposits.
- W—4. 59. Chronic pleurisy and fibrous periostitis and periarthrits. Vol. II., p. 9.
- V—1. 1. Tubercular plastic pleurisy.
- V—2. 61. Chronic pleurisy with collapse of the lung.
- T—4. 4. Diaphragmatic abscess.

TUMORS OF THE LUNGS AND PLEURA.

- V—1. 6. Primary sarcoma of the lungs of the size of a child's head.
- V—2. 10. Portion of the pleura and ribs, showing multiple sarcoma.
- V—2. 12. Sarcoma of the lung.
- V—3. 17. Small subpleural tumor of undetermined character.
- V—4. 29. Sarcoma of the lung.
- W—1. 40. Heart and lungs, showing multiple sarcoma of the serous membranes.
- W—1. 41. Lungs, showing multiple sarcoma.
- W—1. 42. Deposits of metastatic cancer in the lungs, mostly subpleural.

DISEASES OF THE THYROID GLAND.

- W—4. 56. Large lobulated tumor of the thyroid gland. Left carotid artery arising from the innominate artery.

THE DIGESTIVE SYSTEM.

DISEASES OF THE MOUTH, PHARYNX, AND ŒSOPHAGUS.

- A—5. 19. Extensive naso-pharyngeal ulceration (C—1. 47). Probably syphilitic.

DISEASES OF THE STOMACH.

DEGENERATIONS. INFLAMMATION. GASTRIC ULCER.

- A—2. 9. Chronic gastritis.
- A—3. 11. Polypoe gastritis.
- C—1. 44. Chronic gastritis with dilatation of the stomach.

- C—2. 52. Chronic hypertrophic gastritis.
- B—3. 32. Ulcer of the stomach.
- D—2. 87. Multiple gastric ulcers or erosions.
- D—3. 91. Gastric ulcers with perforation.

INFECTIOUS DISEASES OF THE STOMACH.

- E—4. 128. Tubercular ulceration of the stomach.

TUMORS OF THE STOMACH.

- A—2. 8. Cancer of pylorus. The whole circumference of the orifice thickened but not ulcerated. Pylorus contracted to one-third of an inch in diameter. Stomach not dilated.
- A—2. 7. Papilloma of the stomach.
- A—3. 13. Soft cancer of the stomach.
- A—4. 16. Cancer of the pylorus with extensive ulceration.
- B—2. 27. Cancer of the stomach. Vol. IV., p. 42.
- B—2. 30. Cancer of the cardiac end of the stomach.
- B—3. 33. Epithelioma of the stomach.
- C—3. 58. Perforating cancer of the pylorus.
- D—1. 79. Stomach and pancreas, showing colloid cancer of the pylorus, with extension to the pancreas and peritoneum.
- D—2. 85. Cancer of the pylorus.
- D—5. 112. Cancer of the stomach.
- E—4. 127. Cancer of pylorus. The growth covers an area of about three inches in diameter, and projects nearly one inch above the surface. There is no obstruction, and the stomach is not dilated. Specimen removed from a case of phthisis pulmonalis. No metastasis. Vol. III., p. 148.
- E—4. 129. Cancer of the stomach at the lesser curvature, with secondary deposit in the liver. Vol. IV., p. 17.
- E—4. 130. Cancer of the pylorus. Dilated stomach.

DISEASES OF THE INTESTINES.

MALFORMATIONS, STRICTURES, AND MALPOSITIONS.

- A—3. 10. Hernia. A loop of jejunum ten inches from the duodenum.
- C—3. 60. Umbilical hernia.
- C—3. 63. Strangulated hernia.
- C—4. 65. Hernia of the sigmoid flexure in the inguinal canal. Hernia and sac. Vol. III., p. 394.
- C—4. 69. Scrotum, exhibiting congenital hernia.

- B—5. 38. Intussusception of ileum.
- C—5. 74. Intussusception of small intestines.
- C—5. 76. Intussusception of ileum into the colon.
- D—5. 108. Diverticulum of the small intestine. (Dry preparation.)
- C—2. 55. Stricture of the ileum near the cæcum.

INFLAMMATIONS OF THE INTESTINES.

- D—3. 94. Follicular enteritis of the cæcum and adjacent small intestine.
- E—4. 134. Chronic hypertrophic colitis.
- D—4. 104. Perforating ulcer of the small intestine.
- E—4. 131. Perforation and ulceration of the ileum, about ten inches above the valve. Perforation about the size of a pin-head. Peritonitis. Vol. II., p. 141.
- E—4. 132. Perforating ulcer of the duodenum in a case of burn.
- B—5. 43. Ulcer of the vermiform appendix.
- C—1. 46. Appendicitis with adhesions. The appendix communicates with adherent portion of the intestine.
- C—3. 61. Ulceration of the cæcum.
- C—5. 71. Vermiform appendix with perforation.
- D—4. 96. Appendicitis.
- D—4. 97. Large intestine of child, showing perforation.
- E—5. 136. Perforating ulcer of the colon.

INFECTIOUS DISEASES OF THE INTESTINES.

TUBERCULOSIS.

- A—1. 3. Portion of ileum, showing numerous transverse tubercular ulcerations.
- A—1. 4. Small intestine, showing tubercular ulceration.
- A—1. 5. Small intestine of child, showing tubercular ulceration.
- B—1. 22. Intestines, showing tubercular ulceration.
- B—1. 26. Intestines, showing tubercular ulceration.
- C—1. 51. Intestines, showing tubercular ulceration.
- C—5. 77. Portion of small intestine, showing transverse tubercular ulceration extending through the muscular coat.
- D—4. 99. Intestines, showing tubercular ulceration.
- D—4. 100. Intestines, showing tubercular ulceration.
- D—4. 102. Intestines, showing tubercular ulceration.
- E—4. 133. Intestines, showing tubercular ulceration. Vol. IV., p. 61.

TYPHOID FEVER.

- B—1. 23. Early stage of typhoid fever, showing prominent lymphatic follicles.
Vol. III., p. 90.
- C—1. 48. Intestinal lesions of typhoid fever. Marked involvement of the solitary follicles.
- C—1. 49. Intestinal lesions of typhoid fever. Marked involvement of the solitary follicles.
- D—4. 103. Ulceration of Peyer's patches and solitary glands.
- E—2. 116. Intestinal lesions of typhoid fever.

DYSENTERY.

- A—1. 1. Ulceration of the colon. Dysentery.
- A—1. 2. Extensive ulceration of the colon. Dysentery.
- B—1. 24. Hypertrophic and atrophic colitis. Chronic dysentery.
- C—1. 50. Acute dysentery. Mucous membrane of the large intestines, swollen diphtheritic, and hemorrhagic.
- E—2. 117. Ulceration of the colon.
- E—2. 118. Ulceration of the colon.
- E—2. 119. Ulceration of the colon.
- E—2. 120. Ulceration and thickening of the colon.

TUMORS.

- B—1. 25. Small intestine, showing multiple sarcoma. One mass in the cæcum of the size of a hen's egg. A smaller mass twelve inches above the valve.
- C—3. 59. Cancer of the cæcum.
- C—3. 64. Cancer of the cæcum.
- D—2. 86. Colloid cancer of the cæcum.
- C—4. 70. Cancer of the rectum.

DISEASES OF THE PERITONEUM.

- E—5. 139. Granular tubercular peritonitis.
- E—5. 140. Granular tubercular peritonitis.
- D—3. 90. Cancerous nodules on the inferior surface of the diaphragm.
- E—1. 115. Liver and other abdominal viscera, from a case of peritonitis.

DISEASES OF THE LIVER.**DEGENERATIONS AND INFLAMMATIONS.**

- A—4. 14. Fragments of an atrophic liver.
- D—3. 98. Amyloid degeneration of the liver and spleen.
- B—2. 29. Acute yellow atrophy of the liver.
- C—1. 45. Fatty infiltration of the liver, and abscess of the right lobe.
- B—3. 81. Abscess of the liver.
- C—2. 53. Multiple abscess of the liver.
- C—4. 68. Abscess of the liver.
- D—1. 80. Abscess of the liver.
- D—2. 83. Single abscess of the right lobe of the liver.
- D—2. 84. Abscess of the liver.
- D—3. 92. Abscess in a cirrhotic liver.
- A—2. 6. Atrophic cirrhosis of the liver.
- A—3. 12. Hobnail liver.
- A—5. 18. Atrophic cirrhosis of the liver.
- E—1. 113. Liver, lobulated and contracted.
- E—3. 123. Atrophic cirrhosis of the liver.
- E—3. 124. Atrophic cirrhosis of the liver.

TUMORS OF THE LIVER.

- C—4. 67. Multiple sarcoma of the liver. Some of the nodules are melanotic.
- D—1. 81. Multiple sarcoma of the liver. Some of the nodules are melanotic.
- D—4. 98. Melanotic sarcoma of the liver. Weight, seventeen and three-quarter pounds. Vol. II., p. 4.
- E—3. 122. Melanotic sarcoma of the liver.
- D—1. 78. Cancer of the liver, secondary to cancer of the stomach.
- D—2. 82. Liver and stomach, showing primary cancer of the liver.
- D—5. 107. Portion of liver, containing a large cancerous nodule.
- E—1. 114. Large cancerous liver.

PARASITES OF THE LIVER.

- B—4. 34. Hydatid cyst in the posterior border of the left lobe of the liver, about the size of a small peach.
- B—5. 42. Liver of a guinea-pig. Cysts containing coccidia.
- C—4. 66. Shrivelled hydatid of the liver.
- D—5. 110. The membrane of a hydatid cyst found in the common bile-duct.

DISEASES OF THE BILIARY PASSAGES.

- D—3. 88. Liver from a case of obstructive jaundice. Partial obliteration of gall-bladder.
- D—5. 109. Gall-bladder, showing polypoid nodule at the fundus.

DISEASES OF THE PANCREAS.

- C—5. 75. Pancreas, from a case of pyæmia, showing numerous minute pyæmic abscesses throughout its structure.
- D—4. 101. Cyst of the head of the pancreas, the size of a lemon, with cheesy contents, and bound by adhesions to the neighboring structure. There was cancer of the pylorus. Vol. IV., p. 72.
- D—5. 106. Hard cancer of the head of the pancreas, with ulceration of the duodenum.
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GENITO-URINARY SYSTEM.

THE URINARY ORGANS.

MALFORMATIONS.

- L—1. 71. Horseshoe kidney from a man eighty-five years old.
- L—3. 86. Kidney with two ureters.
- L—5. 99. Lobulated kidneys.
- M—1. 104. Anomalous left kidney, consisting of two portions, one above the other, with separate ureters, pelves, and blood-vessels. Five arteries and two ureters.
- N—4. 131. Horseshoe kidney.
- K—1. 32. Lobulated kidney.
- N—3. 128. Single kidney on the right side. Hypertrophy.
- K—1. 35. Kidneys, ureter, bladder, penis, and testicles intact.

DISTURBANCES OF THE CIRCULATION. ATROPHY.

- J—4. 20. Cystic kidney, with hemorrhagic infarction.
- L—5. 96. Extensive hemorrhagic infarct of the kidney.
- N—2. 127. Large white kidneys, showing infarction in the shape of small hemorrhagic areas under the capsule. Also one large white infarct of older date. From a case of ulcerated endocarditis. May 1, 1889.
- M—1. 103. Apparently rupture of the kidney, with aorta and renal artery attached.

LITHIASIS.

- J—4. 21. Kidney, showing hydronephrosis and renal calculus.
- K—3. 48. Cystic kidney from obstruction; pyelitis. Calculi *in situ*.
- K—4. 53. Calculus pyelitis. Calculi in position. Cystic kidney.
- K—4. 57. Nephrolithiasis. Calculi in position.
- K—5. 61. Kidney, with large calculus in the pelvis.
- M—2. 108. Renal calculi in position.
- See also "Pyelonephritis."

INFLAMMATIONS OF THE KIDNEY. FORMS OF BRIGHT'S DISEASE.

- J—2. 6. Large, fatty kidney.
- K—2. 48. Large, fatty (?) kidney, from a case of leukæmia.
- K—3. 51. Smooth white kidney.
- K—5. 67. Smooth white kidney. Abscess of the kidney.
- L—4. 93. Large white kidney.
- L—5. 102. Large white kidney.
- K—8. 52. Fatty and contracted kidney.
- K—4. 56. Chronic parenchymatous nephritis, with commencing contraction.
- N—5. 184. Pair of fatty and contracted kidneys.
- N—5. 187. Large white kidney, with retention cysts.
- J—5. 24. Small, granular, contracted kidney.
- J—5. 25. Contracted kidney.
- K—4. 58. Cirrhotic kidney, with large cysts. Vol. IV., p. 80.
- K—5. 69. Contracted cystic kidney.
- L—8. 85. Chronic interstitial nephritis, showing small cysts.
- L—4. 88. Small contracted kidney, presenting small peripheral cysts.
- J—2. 10. Portion of the vertebral column from the lumbar region. Integumentary covering and left kidney *in situ*, showing posterior perforation of the integument by a post-renal abscess.
- L—4. 188. Liver, gall-bladder, and kidney of a child aged three months. Perinephritic abscess.

TUBERCULOSIS AND SYPHILIS OF THE KIDNEY.

- K—1. 84. Bladder, ureter, and kidney, showing tubercular lesions.
- N—8. 180. Kidney from a case of general tuberculosis of lungs, peritoneum, and both kidneys. This left kidney being converted into pus-pockets extending from the pelvis to the cortex. The disease seems to have commenced in the lumbar vertebræ. Vol. III., p. 195.
- N—5. 185. Tubercular kidney.
- J—4. 22. Tubercular kidney converted into a multilocular sac containing soft white material. The opposite kidney of normal structure, but hypertrophied. Vol. IV., p. 46.

CYSTS OF THE KIDNEY AND HYDRONEPHROSIS.

- J—3. 13. Cystic kidney, with distention of the pelvis.
- J—4. 17. Cystic kidney.
- J—5. 23. Cystic kidney. Distention of pelvis and ureter.

- K—3. 45. Kidney, showing unilocular cyst.
- K—3. 46. Congenital cystic degeneration of the right kidney. Left kidney, ureter, and bladder healthy.
- K—3. 47. Cystic kidney. Large and small peripheral cysts protruding from the surface.
- K—3. 49. Cystic kidney. Transparent cyst, the size of a walnut, projecting posteriorly from the cortex.
- K—4. 60. Cystic kidney. The sac is almost detached from the kidney.
- L—1. 70. Congenital cystic kidneys, with renal calculi. Vol. II., p. 37.
- L—1. 74. Congenital cystic kidney. Presented by Dr. W. E. Hughes.
- L—2. 78. Cystic kidney, with thickening of the capsule.
- L—3. 80. Large unilocular cyst of the kidney.
- M—1. 105. Bilateral multiple renal cysts. No signs before death. Woman eighty-four years old; right kidney weighed two pounds four ounces, the left, two pounds ten ounces. Vol. III., p. 154.
- M—2. 106. Two cystic kidneys. Cysts throughout the substance and under the capsule, varying in size from a pea to a walnut.
- M—5. 119. Enormous sacculated kidney, the result of obstruction by pelvic calculi. The organ measured 11 x 7 inches, and its walls are reduced to a parchment-like thinness. Obstructing calculus *in situ*. It exhibits in its shape a mould of the pelvis and of a part of the ureter. (Dry preparation.)
- N—4. 132. Kidney presenting a unilocular cyst of the size of a child's head.
- L—3. 83. Chronic perinephritis. Dilated pelvis.
- L—3. 87. Kidney, with enormously distended ureter.
- K—1. 86. Kidneys, showing dilatation of pelvis and ureters. Chronic cystitis.

PYELITIS AND PYELONEPHRITIS.

- K—3. 48. Cystic kidney from obstruction. Pyelitis. Calculi *in situ*.
- K—5. 63. Pyelonephritis.
- K—5. 68. Pyelitis, with great distention of the ureter.
- L—5. 98. Pyelonephritis from obstruction.
- M—2. 107. Pyelonephritis.
- M—2. 108. Calculous pyelonephritis. Calculus *in situ*. Enormous distention of the organ.
- M—3. 113. Cystic kidney. Pyelonephritis.
- N—5. 136. Calculous pyelitis, with stones imbedded. Vol. III., p. 206.

TUMORS AND PARASITES OF THE KIDNEY.

- J—1. 4. Cancer of the kidney, showing numerous small calculi.
- L—5. 101. Kidney, with a cyst supposed to be hydatid. Vol. III., p. 288.

DISEASES OF THE BLADDER.**INFLAMMATIONS. HYPERTROPHIES.**

- J—2. 7. Dilated ribbed bladder, with enlarged prostate.
J—2. 8. Dilated ribbed bladder, with penis.
K—2. 40. Bladder, showing chronic cystitis.
L—1. 78. Kidneys and bladder, showing chronic hypertrophic cystitis, hypertrophy of the prostate gland, and cystic kidneys.
L—3. 81. Diverticulum of the bladder, projecting backward.
L—3. 84. Distended bladder, with enlargement of the prostate.
L—4. 95. Bladder and penis, with pubic bone, showing contraction of the bladder, with thickening of its walls.
M—3. 112. Hypertrophied bladder, with diverticulum, the result of ulceration. Vol. III., p. 197.

TUMORS OF THE BLADDER.

- K—2. 41. Tumor of the prostate gland.
L—2. 79. Bladder and penis, showing cancer of bladder and prostate, extending into the urethra.
-

DISEASES OF THE GENITAL ORGANS.**DISEASES OF THE TESTICLE.****INFLAMMATIONS AND DEGENERATIONS.**

- J—5. 30. Syphilitic testicle.
K—4. 59. Tuberculosis of the testicle. Weight, two ounces. From a case of pulmonary and uro-genital tuberculosis. Vol. III., p. 482.
K—5. 64. Tuberculosis of the testicle.
M—4. 116. Encysted hydrocele of the epididymis of both testicles.

TUMORS OF THE TESTICLE.

- K—2. 38. Soft cancer of the testicle.
K—5. 62. Sarcoma of the testicle.
L—3. 82. Sarcoma of the testicle, with calculi.

DISEASES OF THE TUNICA VAGINALIS.

- L—4. 90. Hydrocele.
L—4. 91. Hydrocele.
L—4. 92. Hydrocele.

DISEASES OF THE PENIS AND URETHRA.

INFLAMMATIONS AND INFECTIOUS DISEASES.

- J—5. 26. Syphilitic phimosis.
 K—1. 33. Large cysts of the prostate gland, with penis attached.
 M—2. 109. Bladder and penis. showing distended bladder, enlargement of the prostate, and urethritis.

TUMORS OF THE PENIS.

- K—5. 65. Squamous epithelioma of the penis.

DISEASES OF THE OVARIES.

HEMORRHAGES. INFLAMMATIONS.

- J—3. 15. Concentric laminated clot in the ovary.
 J—5. 28. Ovaries, showing *corpus luteum*.
 J—5. 29. Ovaries, showing *corpus luteum*.

TUMORS OF THE OVARY. CYSTS.

- L—2. 75. Double ovarian cysts and chronic pelvic cellulitis and salpingitis.
 M—5. 118. Large ovarian cyst. (Dry preparation.)
 N—3. 129. Ovarian cyst.
 L—1. 72. Uterus and appendages. Dermoid cyst in the right ovary, about the size of a child's head, and filled with glairy, sebaceous matter.
 N—2. 126. Small dermoid cyst of the left ovary and hemorrhagic cyst of the right. Each tumor about one inch in diameter.

DISEASES OF THE UTERUS AND ITS APPENDAGES.

SALPINGITIS.

- J—3. 16. Uterus and appendages, showing pyosalpinx and fibroid tumor of the round ligament.

HYDRO-SALPINX.

- L—2. 77. Uterus and appendages, showing myxomatous cysts and hydro-salpinx.
 M—4. 115. Uterus with appendages. Hydro-salpinx.
 M—5. 120. Hydro-salpinx. (Dry preparation.)
 K—3. 50. Uterus and appendages. Huge hydro-salpinx. Vol. III., p. 258.

THE UTERUS.

TUMORS.

- J—1. 1. Enormous fibroid tumor of the uterus.
 J—1. 2. Intra-uterine fibroids, having undergone calcareous changes.
 J—1. 3. Huge fibroid of the uterus, partially calcareous.
 J—1. 5. Pregnant uterus with multiple fibroids.
 J—3. 11. Fibroid tumor of the uterus, showing calcareous change.
 J—4. 18. Extramural polypoid fibroma of the uterus.
 K—1. 31. Five large fibroid tumors of the uterus undergoing calcareous change.
 The largest tumor is three inches in diameter.
 K—2. 42. Calcareous fibroid tumors of the uterus.
 K—2. 44. Fibroid tumor of the uterus.
 L—2. 76. Intramural fibromata of uterus.
 L—5. 97. Fibroma of the broad ligament of the uterus.
 M—3. 110. Multiple fibromata of the uterus.
 M—3. 111. Uterus, exhibiting numerous extramural fibroids.
 M—4. 114. Fibroid tumor of the uterus.
 M—4. 117. Fibroid tumor of the uterus.
 M—5. 121. Section of a calcareous tumor of the uterus, 8 x 2 inches. (Dry preparation.)
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 J—2. 9. Sarcoma of the uterus.
 J—5. 27. Hydatid mole.
 L—5. 100. Uterine hydatid (?).
 N—1. 124. Cancer of the uterus and vagina.
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VAGINA AND EXTERNAL GENITALS.

- K—2. 37. Primary cancer of the vagina. The neck of the uterus is seen in the middle of the specimen. (Proceedings of the Pathological Society of Philadelphia, Vol. IV., 1874.)
 N—2. 125. Cancer of the vagina. Vol. II., p. 195.
 N—4. 133. Cancer of the vagina.
 J—3. 14. Elephantiasis of the vulva.
 J—4. 19. Elephantiasis of the labia majora of a colored woman.
 L—4. 89. Vesico-vaginal fistula.
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PREGNANCY AND THE PUERPERAL STATE.

- J—1. 5. Pregnant uterus, with multiple fibroids.
N—1. 128. Uterus with placenta.
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DISEASES OF THE MAMMARY GLAND.

- J—3. 12. Hard cancer of the mammary gland.
K—2. 39. Cystic epithelioma of the mammary gland.
K—4. 54. Cystic sarcoma of the mammary gland.
K—4. 55. Glandular cancer of the breast.
K—5. 66. Hard cancer of the mammary gland.
L—4. 94. Hard cancer of the mammary gland.
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THE NERVOUS SYSTEM.**MODELS.**

- Y—1. 7. Papier-maché model of spinal cord and the cerebellum.
-

DISEASES OF THE SPINAL CORD.**MALFORMATIONS.**

- Y—1. 2. Skeleton of a new-born infant, showing spina bifida of the lumbo-sacral region.
Y—1. 4. New-born infant, showing spina bifida. Tumor about the size of a lemon. (Wet preparation.)
Y—1. 5. Spina bifida. Tumor the size of an orange, situated in the lumbo-sacral region.

DISEASES OF THE MEMBRANES OF THE SPINAL CORD.

- Y—1. 3. Spinal column, with cord attached. Chronic pachymeningitis.
Y—1. 6. Multiple gummata of the dorsal vertebræ, with extensive destruction of the bodies, compression of the cord, and paraplegia.
Z—1. 18. Spinal cord, showing tumor of unknown nature.
-

THE BRAIN.**ETHNOLOGY.**

- Z—2. 25. Syriac male brain (normal).
Z—1. 20. Hindoo female brain (normal).
Z—3. 29. Described as "brain of Pietro Chaube." Left side.

MALFORMATIONS.

- Y—1. 1. Skeleton of a new-born infant, showing meningocele, springing from the occipital plate.
Y—3. 12. Anencephalic monster.

DISEASES OF THE CEREBRAL BLOOD-VESSELS.

- Y—2. 11. Cerebral hemisphere, showing aneurism of the middle cerebral artery.
Y—3. 17. Aneurism of the middle cerebral artery.
Z—2. 28. Superficial softening cyst of the left hemisphere, involving the horizontal ramus of the fissure of Sylvius, the superior temporo-sphenoidal convolution, and the lower sections of the supra-marginal and angular convolutions. It extends backwards to the occipital lobe, in the direction of the transverse sulcus.
Y—2. 8. Apoplectic cysts.

DISEASES OF THE CEREBRAL MEMBRANES.

- Z—1. 19. Suppurative pachymeningitis.
Y—3. 14. Dura mater, from the brain from which the cranial vault (Specimen Q 5, No. 85) was removed. Ulcerated openings in the membrane, corresponding with the openings in the vault.
Z—3. 27. Dura mater, showing ossification of the falx and subdural clot.
Y—2. 10. Hemorrhagic internal pachymeningitis. False membrane in the arachnoid space.
Y—3. 16. Portion of the dura mater, showing pachymeningitis.
Y—2. 9. Internal hemorrhagic pachymeningitis.
Z—2. 24. Intermeningeal hemorrhage. Blood-clot upon the left hemisphere, involving the frontal, central, and parietal lobes, near the median fissure.
Y—3. 15. Melanoma of the dura mater.

TUMORS OF THE BRAIN.

- Z—1. 21. Tumor of the left crus.
Z—1. 22. Tumor of the pituitary body, corresponding to enlarged sella turcica (Q 4, No. 42).
Z—3. 28. Tumors of the dura mater, projecting inwardly, over the position of the interparietal fissure.
Z—3. 30. Tumor of the thalamus.
Z—2. 26. Melanotic sarcoma of the orbit.
Y—3. 13. Said to be soft cancer of the orbit.

THE OSSEOUS SYSTEM.

NORMAL. MALFORMATIONS.

- O—1. 2. Skeleton of a female. Normal. Incomplete.
- P—4. 25. Right temporal bone with internal ear exposed.
- P—4. 32. Two parietal bones.
- Q—5. 36. Wormian bone in the coronal suture.

THE BONE MARROW.

- R—2. 71. Pernicious anæmia. Portion of shaft of tibia, showing uniform discoloration.

DISEASES OF THE OSSEOUS SYSTEM.

RESORPTION OF BONE.

- P—4. 23. A portion of the vault of the cranium, exhibiting absorption of bone along the longitudinal sinus from pressure of pacchionian bodies.
- Q—4. 40. Vault of cranium, exhibiting resorption of the frontal bone, probably from pressure.
- Q—2. 53. Longitudinal section of the upper third of the left femur, exhibiting osteomalacia.

INFLAMMATIONS OF BONE. CARIES. NECROSIS. TUBERCULOSIS. SYPHILIS.

- O—1. 1. Articulated skeleton of a syphilitic male, exhibiting ossifying periostitis and caries of the femur.
- O—1. 3. Articulated skeleton, showing curvature of the spinal column.
- P—1. 4. Incomplete skeleton of a child, showing syphilitic caries of the right parietal bone.
- P—1. 5. Pelvis with the lumbar and two dorsal vertebræ and thigh-bones articulated, showing caries of the same. The femur is fractured at the head, and osteophytes are seen upon the left iliac and femur.
- P—1. 6. Articulated skeleton of a child about seven years old, showing caries of the last dorsal vertebra, with posterior curvature.
- P—1. 7. Caries of the ischium and pubic bones. Osteophytes.
- P—1. 8. Articulated thorax, showing caries of vertebræ and marked angular posterior curvature at nearly a right angle.
- P—3. 14. Lumbar vertebræ, exhibiting caries of the body of the bone.
- P—3. 15. Lumbar vertebræ, showing caries with partial destruction of the articulating facets.
- P—3. 16. First, second, third, and fourth lumbar vertebræ, with almost total destruction of the bodies of the second and third.
- P—3. 17. Articulated spinal column, exhibiting caries of the six lower dorsal vertebræ, with ankylosis and posterior curvature.

- P—3. 18. Six articulated vertebræ, showing caries of the last three dorsal and curvature.
- P—3. 19. Left innominate bone. Caries of the acetabulum, with separation of the ilium, ischium, and pubis.
- P—3. 20. Left half of the sacrum and lower lumbar vertebræ, with commencing destruction of the articular surfaces of the bones.
- P—3. 22. Left innominate bone and corresponding femur, showing total destruction of the head and neck of the latter, with luxation upwards and outwards, and resulting new articulation.
- P—4. 24. Circular portion of the cranium removed by trephining; also pieces of necrosed bone removed from around the opening.
- P—4. 26. Temporal bone, exhibiting caries of the petrous portion and perforation of the mastoid cells.
- P—4. 29. Skull, with numerous perforations from syphilitic gummata.
- P—4. 30. Inferior maxilla, exhibiting destruction through caries of a part of the body and left horizontal ramus.
- P—4. 31. Sternum, exhibiting superficial caries from soft, gummy tumor.
- Q—5. 37. Vault of cranium, exhibiting syphilitic necrosis and hyperostosis of the external table.
- Q—4. 44. Right elbow-joint, exhibiting caries of the condyles of the humerus, the olecranon process of the ulna, and the head of radius.
- Q—4. 46. Left humerus, exhibiting caries of the articulating surfaces of the head and condyle, from a case of rheumatoid arthritis.
- Q—3. 47. Bones of the left arm, forearm, and hand, and of the right forearm and hand of a child, exhibiting caries of the articular surfaces of the left elbow-joint and the upper third of the right ulna.
- Q—3. 50. Right radius and ulna, showing caries of the articulating surface of the latter bone at the elbow.
- Q—3. 51. Upper third of femur, exhibiting caries and complete absorption of the articular base of the head of the bone.
- Q—3. 52. Upper third of femur, exhibiting caries of the shaft. Necrotic destruction of the head and neck of the bone.
- Q—2. 54. Superior half of left femur, showing caries at the middle of the shaft.
- Q—2. 56. The left femur sawed through, exhibiting exteriorly exostosis eburnea and osteophytes (periostitis). The section shows extraordinary thickening of the compact substance, with caries of enclosed cancellated structure and obliteration of the medullary canal.
- The sheath of the necrosed diaphysis is an imperfect cylinder of eburneated new bone. There is also absorption of the articular facets of the condyle.
- Q—1. 58. Right femur and upper ends of the corresponding tibia and fibula articulated; exhibiting ununited oblique fracture of the lower third of femur, with necrosis.

There is also caries of the articular facets of the bones forming the joint, due to subsequent extension of an inflammatory process from the seat of fracture.

- Q—1. 59. Right knee-joint, exhibiting caries of the articulating surfaces of the femur and tibia.
- Q—1. 61. Head of tibia and condyles of femur, showing caries of the articulating surfaces of both.
- Q—1. 62. Left patella and head of tibia and fibula, showing caries of articulating surfaces. (Rheumatoid Arthritis.)
- R—2. 70. Right tibia and fibula, exhibiting fracture and partial destruction by necrosis of the former bone.
- S—1. 88. Sternum eroded by aneurism.
- U—3. 15. Circular ulcer of sternum and integuments.

INFLAMMATIONS OF BONES, WITH REGENERATION AND HYPERTROPHY.

FRACTURES. SYPHILIS.

- P—2. 9. Deformed pelvis, with numerous exostoses; ossification of cotyloid ligament, and resulting deepening of acetabulum.
- P—2. 11. Ununited fracture of neck of femur, large adjacent deposit of callus with attempt to form a new joint.
- P—2. 12. One-half of pelvis and femur, with osteophytes on the neck of the latter bone.
- P—2. 13. Articulated pelvis, including heads of femurs, showing exostosis of descending ramus of left pubic bone.
- P—3. 21. Right innominate bone, exhibiting enlargement of the acetabulum from hip-joint disease.
- Q—5. 34. Vault of cranium, showing the syphilitic, ossifying periostitis over the sagital suture, near its middle. The vault has also been trephined in the right parietal bone an inch and a half from the sagital suture. General thickening of the vault.
- Q—5. 35. Vault of cranium enormously thickened, and, although including little more than the two parietal, weighing twenty and one-half ounces; its thickness ranges from one-quarter to one-half inch. The large irregular fragment, $2\frac{1}{4} \times 2\frac{1}{2}$ inches, was removed by necrosis, the result of syphilitic periostitis, which involved the periosteum over nearly the entire vault.
- Q—5. 38. Vault of cranium, exhibiting exostosis eburnea on the inner surface of the frontal bone, and marked thickening throughout.
- Q—5. 39. Portion of vault of cranium, including the two parietal and portion of the frontal bone, exhibiting thickening of the latter.
- Q—4. 41. Fracture of occipital bone.
- Q—4. 42. Enlarged sella turcica. Tumor of pituitary body in a case of pernicious anæmia.
- Q—4. 43. Healed fracture of the clavicle, showing callus.

- Q—4. 45. Right elbow-joint, exhibiting exostosis of the articular surface of the olecranon process of the ulna.
- Q—3. 48. Right elbow-joint, exhibiting osteophytes on the condyles and the articular surface of the right humerus, and on the ends of the corresponding radius and ulna.
- Q—3. 49. Left radius and ulna, exhibiting a united fracture of the lower end of the radius.
- Q—2. 55. Left femur, exhibiting oblique fracture in upper third, displacement downwards and inwards of the upper fragment; also extensive hyperostosis of the head and neck of the bone.
- Q—2. 57. Left femur, exhibiting ununited fracture at junction of the middle and lower thirds; caries and irregular deposit of callus.
- Q—1. 60. Left knee-joint, with hyperostosis (rheumatoid arthritis) of all the articulating surfaces and bony union of the patella upon the external condyle.
- Q—1. 64. Knee-joint, with ossifying periostitis around the joint and on the shaft of femur, and rarefying osteitis of joint surfaces.
- R—1. 69. Right tibia and fibula fused by bony union, from a stump after amputation of the foot.
- R—2. 72. Articulated left leg of an infant (probably a fœtus), exhibiting a fracture at junction of middle and upper third of the femur, firmly united by abundant encircling callus.

DEVELOPMENTAL DISEASES OF BONE.

- P—4. 27. Head of child, vault separated, exhibiting numerous cranio-tabeal perforations; from a case of rickets.
- P—4. 28. Congenital cranio-tabes.
- Q—5. 33. Portion of vault of cranium, showing cranio-tabes.
- R—1. 67. Right tibia and fibula, exhibiting marked anterior curvature of the former bone; from a case of rickets.
- R—1. 68. Left tibia and fibula from the same case, exhibiting the same deformity.

TUMORS OF BONE.

- R—1. 65. Articulated right leg and foot, exhibiting osteo-sarcoma of both extremities of the tibia and the fibula.
- R—1. 66. Articulated left foot and leg with knee-joint, including inferior third of the femur, fixed by bony ankylosis at a right angle to the bone of the leg.
- R—5. 76. Osteo-sarcoma of left great toe.
- R—5. 77. Osteo-sarcoma of right great toe.
- S—1. 80. Cancer of the sternum, with perforation.

THE JOINTS.

INJURIES. REGENERATION. NEW JOINTS. ANKYLOSIS.

- P—2. 10. Luxation upwards and backwards of the femur. Absorption of the head of the bone. Attempt at formation of a new joint.
- Q—1. 63. Displacement of the ligamentum patellæ.
- R—4. 74. Knee-joint, showing fibrous ankylosis.

INFLAMMATIONS OF THE JOINTS.

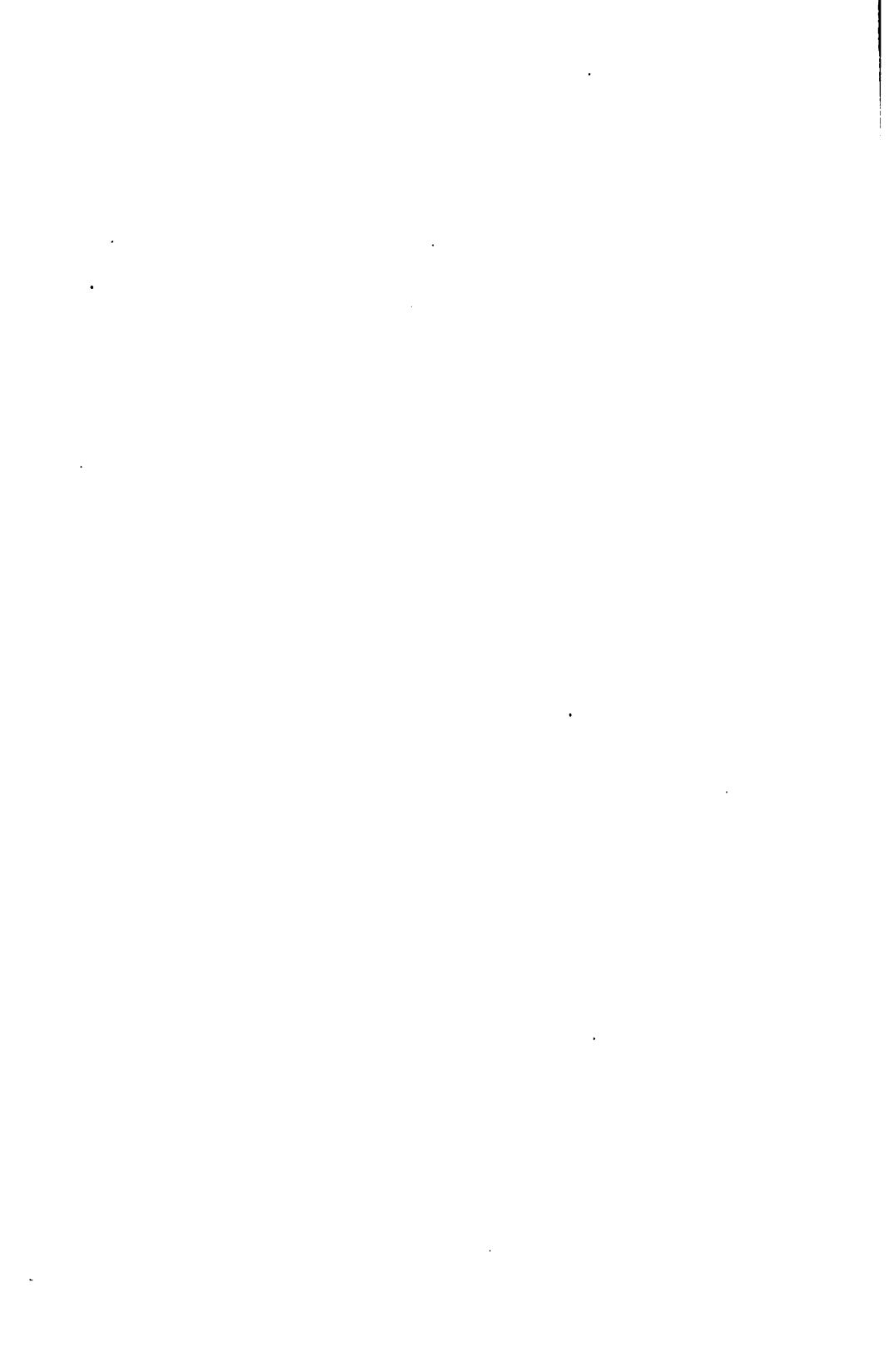
- R—4. 73. Left elbow-joint, the seat of chronic synovitis.
- R—4. 75. Right knee-joint, the seat of chronic synovitis.
- R—4. 78. Chronic suppurating synovitis. Great distention of the capsule of the joint.
- S—1. 81. Chronic synovitis. Necrosis.
- S—1. 79. Rheumatoid arthritis. Left knee-joint.
- S—1. 82. Rheumatoid arthritis. Left knee-joint.
- U—3. 16. Pes equinus. Abnormal development of the last two toes.

DISEASES OF SKIN.

- T—4. 1. Left foot, from a case of elephantiasis.
- U—3. 13. Gangrene following frost-bite.
- T—5. 11. Specimen of tattooing. (Dry.)
- U—3. 17. Specimen of tattooing.
- U—3. 19. Left foot, the seat of moist gangrene, with line of demarcation.
- U—2. 21. Gangrene of great toe.

CALCULI.

- T—5. 8. Cast of a large salivary calculus; from a horse.
- T—5. 7. Gall-stones.
- T—5. 12. Gall-stone of unusual size, nearly spherical, one inch in diameter. The only one in the gall-bladder of a female.
- T—5. 9. Four out of five phosphatic calculi removed from the pelvis of cystic left kidney. One irregularly ovoid, four inches long, one and a half transversely, weighing four and a half ounces in moist condition.
- T—5. 6. Stone from the urinary bladder.



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